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EXECUTIVE SUMMARY

Walking is the most basic form of human transportation. Everyone is a pedestrian including persons using wheelchairs and other forms of mobility assistance. Transit and automobile trips begin and end with a walk. Walking is often the best way to accomplish short trips in urban areas. Almost everyone relies on walking to get to where they want to go each day.

A recent report by the Surface Transportation Policy Project (STPP) entitled "Mean Streets 1998" ranked the Providence metropolitan area as the fourth meanest area for pedestrian travel in the nation. This report prompted the Rhode Island Department of Transportation (RIDOT) to examine the issues of pedestrian safety, including an analysis of traffic crash data and an assessment of state policies relating to roadway planning and design. The RIDOT analysis revealed that the STPP report greatly overstated the severity of the problem within the State of Rhode Island and City of Providence because the STPP report was based on data for a regional area including significant portions of Massachusetts. Indeed, the analysis showed that Rhode Island fared very well against the national data. While the STPP's conclusions for Rhode Island may have been misleading, the report did have the important affect of focusing the attention of Rhode Island public officials on the real issue of pedestrian safety. This plan presents RIDOT's assessment of the pedestrian safety problem within the State and identifies an action plan to address the problem.

The Rhode Island Department of Transportation (RIDOT) encourages strong local initiatives in identifying, planning, prioritizing and funding pedestrian improvements because most walking trips take place in neighborhoods. Implementing the plan will require the coordinated action by state and local agencies, and private organizations. We seek new opportunities for partnerships with local and private interests to encourage more walkable (liveable) communities throughout the state.

The post-war boom of the suburbs was the period in which walking suffered the greatest setback, as many streets were built without sidewalks and crossing opportunities. Many people may not realize how much walking they do since most other trips (driving or transit) are linked by walking. The exercise benefits of walking are promoted which could lead to increased walking as a transportation mode.

Providing walkways helps meet the needs of a larger segment of the population who do not have access to an automobile — the transportation disadvantaged: the poor, the young, the elderly, people with disabilities, and others who do not use a motor vehicle for a variety of reasons. Walkways help create opportunities for these groups to participate in the social, cultural and economic life of the community.

Most people live in urban areas which have the highest concentration of origin and destination points. Stores, shops and services are more accessible to those without cars. Average trip distances are short and are most easily made by bicycling or walking. Short automobile trips create much of the congestion on urban arterials, contribute disproportionately to the urban air problem due to cold starts, and contribute to many of the crashes in urban areas.

Most urban streets in Rhode Island have been in place since before the wide spread use of the automobile. Virtually all destinations are located on a street. People who walk need access to these same destinations. Streets can be made safer when pedestrians are on the sidewalk and visible. Many resources have been dedicated to creating this system. Creating a totally new infrastructure for pedestrians and bicyclists may not be financially or physically feasible.

Unlike the automobile, pedestrian transportation is not at the forefront of the public's concerns about the future of Rhode Island. Similarly, traffic engineers and planners are asked to address the problems of rapid growth and are more apt to think of ways to ease traffic congestion, while providing a safe environment which may provide benefits to pedestrians.

Pedestrian planning suggests a change of focus. Instead of allowing pedestrian improvements to be a by-product of efforts to deal with vehicular traffic in a safe manner, pedestrian planning requires concurrent concentration on the needs of the pedestrian. What does a pedestrian need to walk safely and pleasantly in the community? Once determined, those needs are measured against the very real, practical limitations imposed by a busy system of streets and highways. Pedestrian planning does not demand that the needs of motorists be ignored. Rather it requires that the needs of pedestrians be given equal consideration.

Pedestrian policy is important because it is the only way to insure that pedestrian needs are kept to the forefront of analyses of what needs to be done to improve the quality of life in a community and make it a liveable community.

What the Data Shows

RIDOT reviewed the traffic crash data from 1993 to 1998 as it applied to pedestrians. It should be noted that total crash data was available for the years 1993 to 1997 and the Fatality Analysis Reporting System (PARS) data was available from 1993 to 1998. PARS contains data on the most severe traffic crashes, those in which someone was killed.

Rhode Island Crashes 1993-1998

	1993	1994	1995	1996	1997	1998	Av2./Year
Total Crashes	19,427	20,447	2 0,496	20,682	21,088	20,149	20,382
Pedestrian Crashes	320	374	*265*	310	357	423	341
Pedestrians as a Percent of Total Crashes	1.6	1.8	1.3	1.5	1.7	2.1	1.7

Average Pedestrian Crashes Per Year 1993-1998	
Average Pedestrian Crashes/Year	341
Average Pedestrian Fatalities/Year	13
Fatalities as a % of Total Pedestrian Crashes	3.8

Providence had the highest number of vehicular crashes involving pedestrians (pedestrian crashes) with 408 (20.0% of all crashes), followed by Warwick with 220 pedestrian crashes (10.7% of the total). From 1993 to 1998, all but Little Compton had at least one pedestrian crash.

Total Rhode Island pedestrian crash data for the period shows that 2,049 pedestrians were involved in crashes. On average there were 341 pedestrians involved in crashes each year in Rhode Island. PARS data shows that on average 13 pedestrians were killed in these crashes each year. This represents a rate of 3.8% of all pedestrian crashes resulting in a fatality. Based on the national criteria of fatalities per 100,000 residents, Rhode Island has 1.14 fatalities per 100,000 residents, while the national average was 1.93 fatalities per 100,000 residents (1998 Traffic Safety Facts), putting Rhode Island well below the national average.

From 1993 to 1999, a total of 94 fatal pedestrian crashes were recorded, for an average of 13 fatalities per year. Providence, with 408 crashes, 5.11% were fatal. Warwick with 220 crashes, 6.8% were fatal. However, South Kingstown with 32 total crashes, *l5.6%* resulted in a fatality. Similarly in Coventry with 52 crashes, 9.6 % resulted in a fatality. This could be due to the more rural character of both South Kingstown and Coventry and the higher speeds of cars on their roads.

From 1993 to 1998 13 towns in Rhode Island did not record a pedestrian fatality. Nine (9) cities and towns recorded one fatality and eight (8) cities and towns recorded two fatalities.

Pedestrian Fatality Rate/100,000 Residents

	1996	1997	1998
Rhode Island	1.62	0.71	1.10
United States Average	2.04	1.98	1.93
National Rank	23rd	1st	8th

Rhode Island had the 23rd best fatality rate in the United States in 1996 of the 50 states, the District of Columbia and 3 territories. In 1997 Rhode Island had the best rate in the United States and in 1998 Rhode Island had the best rate.

Based on the Federal Highway Administration (FHWA) Traffic Safety Facts for 1996 through 1998, the pedestrian fatality rate per 100,000 residents for U.S. fatalities averaged 1.98. The average fatality rate for Rhode Island was 1.14, well below the national average.

Alcohol as a Factor in Pedestrian Crashes

A growing pedestrian safety problem is the incidence of alcohol involvement in a fatal pedestrian crash. Of all of the U.S. pedestrian deaths, 22.1% involved drinking by the pedestrian. Since alcohol can affect judgment and reaction time, its use may be particularly hazardous to older pedestrians already experiencing age-related limitations in some of their physical abilities. Even relatively small amounts of alcohol can have exaggerated effects when used with some prescription medicines commonly taken by older adults. Dealing with the alcohol problem in pedestrian crashes is complicated by the fact that there are no legal restrictions against walking after drinking. Further, widely publicized campaigns to deter drunk driving may in fact be contributing to the crash problem for pedestrians. Efforts to reduce drunk driving, such as revoking one's license, may convert a drunk driver to a drunk pedestrian.' About 25% of the fatalities in Rhode Island exceeded the .08 standard and about 20% exceeded the .10 standard. Of the 24 who met the .08 standard, 3 were school-aged children and two were senior adults over the age of 65. About 79% of all fatalities, exceeding the .08 standard, were in the 21-64 age group.

The first step in accomplishing the goals established in this plan is to make a formal commitment to pedestrian transportation. Without this formal commitment the recommendations in the plan are no more than a series of good ideas. The formal commitment to pedestrian transportation is needed to transform ideas into reality.

Pedestrian transportation must be elevated to a priority level equal to that of the automobile and transit.

The plan's recommendations are grouped into six categories:

- Coordination/Implementation
- Planning
- Engineering
- Encouragement/Promotions

1. Emergency Request Program: Prioritize and address requests by disabled individuals and/or local communities on an individual basis. Under this program, small-scale improvements can be readily accomplished.
2. New Construction Program: Incorporate ADA improvements into all active design projects so that all new projects comply with the Act. ADA improvements are also incorporated into any Physical Alteration Permits (PAPs) that the public submits for work necessary to access a State Highway.
3. State ADA Improvement Program: Inventory the State Roadway System for compliance to the ADA, and identify all deficiencies within the System. This will provide a basis for establishing accessible corridors and prioritizing the needed improvements.

- Education and Training
- Enforcement

The ADA is a civil rights act that affects both the public and private sector, which must provide accessible routes for all individuals. Exterior accessible routes include parking access aisles, curb ramps, crosswalks at vehicular ways, walkways, ramps and lifts. RIDOT is committed to accessible routes and is dedicated to upgrading them to ADA standards. The Department is using a three-pronged approach:

In an effort to initiate an ADA program, the state was divided into three geographic regions and the services of three consulting firms were retained to achieve this goal. The purpose of the surveys was to create a computerized database of sidewalk information for planning and design purposes. The database management system will be used to identify ADA accessible corridors, prioritize locations for improvements and determine funding requirements. The field surveys will document existing conditions and identify conforming and nonconforming instances, these instances include ramps, driveways and obstructions. To date only Providence County has been completed.

Existing Conditions

County	State Roadway Miles	Sidewalk Miles
Providence	444.92	283.10
Bristol	95.46	56.17
Newport	140.50	40.54

Introduction

Walking is the most basic form of human transportation. Everyone is a pedestrian including persons using wheelchairs and other forms of mobility assistance. Transit and automobile trips begin and end with a walk. Walking is often the best way to accomplish short trips in urban areas. Very little training is required and it is available as a transportation mode to people of all ages. Almost everyone relies on walking to get to where they want to go each day.

Walking is one of the best exercises and is a transportation form with no adverse environmental affect. Therefore, from a public policy prospective, all health, environmental and transportation officials should encourage walking. While we promote walking as a recreation activity or transportation option, *we* must also ensure that public walkways are safe for pedestrians.

A recent report by the Surface Transportation Policy Projects (STPP) entitled "Mean Streets 1998" ranked the Providence metropolitan area as the fourth meanest area for pedestrian travel in the nation. This report prompted the Rhode Island Department of Transportation (RIDOT) to examine the issues of pedestrian safety, including an analysis of the traffic crash data and an assessment of state policies relating to roadway planning and design. The RIDOT analysis revealed that the STPP report greatly overstated the severity of the problem within the State of Rhode Island and City of Providence because the STPP report was based on data for a regional area including significant portions of Massachusetts. Indeed, the analysis showed that Rhode Island fared very well against the national data. While the STPP's conclusions for Rhode Island may have been inappropriate, the report did have the important affect of focusing the attention of Rhode Island public officials on the real issue of pedestrian safety. This plan presents RIDOT's assessment of the pedestrian safety problem within the State and identifies an action plan to address the problem.

The pedestrian safety plan developed by RIDC'T was created to inform state and local agencies, the private sector and individuals how transportation policy, planning and practice can be integrated to better meet the walking needs of residents and visitors. RIDOT is responsible for the preparation of the plan and is one of many players with the capacity to help improve walking conditions. RIDOT encourages strong local initiatives in identifying, planning, prioritizing and funding pedestrian improvements because most walking trips are local.

This plan serves the following purposes:

1. To implement the recommendations of *Transportation 2020: Ground Transportation Plan (1998);*
2. To guide RIDOT, the State Planning Council (the Metropolitan F] aiming Organization), the State Traffic Commission, cities and towns of Rhode Island and others in developing safe walking systems; and
3. To provide information to citizens interested in pedestrian transportation.

The Plan is organized into the following Parts:

1. **A Primer on Walking** - Presents an overview on walking as a transportation mode and on pedestrian planning.

II. **Policies and Goals** - Presents the State Goals and Policies related to pedestrian safety issues.

III. **Pedestrian Safety Data** - Presents and discusses traffic crashes within Rhode Island that resulted in injury to pedestrians and compares this data to national data.

IV. **Pedestrian Facilities and Safety Issues** . Looks beyond the data and attempts to address the trends and policies which affect pedestrian safety.

V. **Recommendations** . Presents specific recommendations which can improve pedestrian safety within Rhode Island.

Implementing the plan will require the coordinated action by state and local agencies and private organizations. We seek new opportunities for partnerships with local and private interests to encourage more walkable (liveable) communities throughout the state.

Part I: A Primer on Walking

Everyone is a pedestrian. The post-war boom of the suburbs was the period in which walking suffered the greatest setback, as many streets were built without sidewalks and crossing opportunities. Walking is often recommended as a gentle exercise for people of all ages but the transportation role of walking is still mostly underutilized. Many people may not realize how much walking they do since most other trips (driving or transit) are linked by walking. If the exercise benefits of walking are promoted, this could lead to increased walking as a transportation mode.

The benefits of walking to the transportation system are:

- Reduction of traffic congestion
- Reduction in air and noise pollution
- Reduction in wear and tear on roads
- Reduction in petroleum consumption
- Reduction in crashes and property damage
- Reduction in the need for additional roads, travel lanes and parking
- Improvement in overall health and well-being through regular exercise

Providing walkways also helps meet the needs of a larger segment of the population who do not have access to an automobile — the transportation disadvantaged: the poor, the young, the elderly, people with disabilities, and others who do not use a motor vehicle for a variety of reasons, Walkways help create opportunities for these groups to participate in the social, cultural and economic life of the community.

Most people live in urban areas which have the highest concentration of origin and destination points. Stores, shops and services are more accessible to those without cars. Average trip distances are short and are most easily made by bicycling or walking. Short automobile trips create much of the congestion on urban arterials, contribute disproportionately to the urban air problem due to cold starts, and contribute to many of the crashes in urban areas.

Most urban streets in Rhode Island have been in place since before the wide spread use of the automobile. Virtually all destinations are located on a street. People who walk need access to these same destinations. Streets can be made safer when pedestrians are on the sidewalk and visible. Many resources have been dedicated to creating this system. However, creating a totally new infrastructure for pedestrians and bicyclists may not be financially or physically feasible.

Unlike the automobile, pedestrian transportation is not at the forefront of the public's concerns about the future of Rhode Island. The general public usually does not think about pedestrian transportation when they commute to work and walk to their destination. They don't think about pedestrian transportation when they attempt to walk into the neighborhood store or about the number of cars on the road and the difficulty they have crossing the street. They may think about the noise and pollution and how unpleasant it can be to walk so close to fast moving traffic. The focus of attention traditionally has been on the car. Similarly, traffic engineers and planners are often asked to address the problems of rapid growth and must balance safety versus convenience. Pedestrians are considered when determining ways to ease traffic congestion. Policy makers tend to be more concerned with the effect of new developments on parking, traffic capacity and congestion than with pedestrian issues and facilities.

Pedestrian planning suggests a change of focus. Instead of allowing pedestrian improvements to be a by-product of efforts to deal with traffic in a safe manner, pedestrian planning requires concentration on their needs at the same time. What does a pedestrian need to walk safely and pleasantly in the community? Once determined, those needs are measured against the very real, practical limitations imposed by a busy system of streets and highways. Pedestrian planning does not demand that the needs of motorists be ignored. Rather it requires that the needs of pedestrians be given equal consideration. Equal attention cannot be given to pedestrian issues unless there is a commitment to examine the entire community — roads, schools, transit, commercial and office developments, and zoning policies — with an eye toward insuring that the services provided pedestrians are not thither reduced by the increasing demand for new roads and new developments. It is also designed to identify what modifications are needed to improve the safety and convenience of pedestrians within the existing infrastructure.

Ideally, attention to pedestrian needs should be an integral part of transportation planning. However, as the case with bicycle transportation, nationally pedestrian issues are secondarily the responsibility of transportation planners and traffic engineers. Until that time when through education and policy commitment, pedestrian transportation is fully integrated into the design of urban spaces, it will require the coordination of multiple agencies and organizations to insure that the needs of pedestrians are not overlooked.

Pedestrian policy is important because it is the only way to insure that pedestrian needs are kept to the forefront of analyses of what needs to be done to improve the quality of life in a community and make it a liveable community.

PART II: Policies and Goals

In November 1998, the State Planning Council approved the State's long range transportation plan entitled *Transportation 2020: Ground Transportation Plan (State Guide Plan Element 611).* In Part 611.2, the Vision Statement provides a framework for this plan:

> Our State is the second most densely populated in the union. Existing urban places and locations that are suitable for development need improved transportation services, but open space and pristine rural areas should not be sacrificed. To preserve the beauty of Rhode Island for future generations, state transportation planning and design must work hand-in-hand with cities and towns to manage land development and establish standards for roads that are responsive to safety, capacity, environmental and aesthetic concerns...

Goals and Policies Established in the Ground Transportation Plan

Goals and Policies (including recommendations) from the Ground Transportation Plan are provided below. In addition, the State Land Use Plan and the State Greenways Plan have related policies and recommendations which support greater focus on pedestrian travel needs.

Pedestrian and bicycle travel can be made safer and more appealing by:

Completing a statewide network of bicycle and pedestrian routes for commuter, recreational, and tourist travel. Coordinate planning for state and local routes. Improve pedestrian safety.

- Where feasible, accommodate pedestrians and bicycles in designs of roads and streets;
- Provide for safe pedestrian travel, including sidewalks, crosswalks, lighting and signage;
- Build a statewide, interconnected bicycle/pedestrian network as recommended in the Greenspace and Greenways element of the State Guide Plan.
- Designate on-road bicycle routes by striping and signing.
- Promote bicycling and walking as transportation choices.
- Develop criteria to measure municipal performance on development of a balanced transportation system, and offer incentives (higher priority for state grants, better match ratios, etc.) for communities whose planning, zoning and land development programs and local capital investments demonstrate a commitment and progress toward increasing the modal balance of the local transportation systems;
- Place more emphasis on pedestrian travel, integrating this mode with other services.
- Integrate bicycling and walking options into new development.
- Promote local regulations that encourage neo-traditional, village centered, infill, and other walkable, bike-able, compact development patterns;
- Review standards for comprehensive plans to insure that bicycle/pedestrian considerations are included and that municipalities are planning a balanced transportation system;
- Promote adoption of municipal land development provisions that require integration of bicycle and pedestrian facilities (bikeways, bike lanes, and end use facilities; paths, sidewalks, trails) as part of site development;
- Give greater priority to traffic-calming and pedestrian features in community planning and development;
- Insure that all state highway projects consider the potential for enhancing opportunities for walking and bicycling.

RIDOT Goals and Policies

RIDOT Mission *

To maintain and provide a safe, efficient, environmentally, aesthetically and culturally sensitive intermodal transportation network that offers a variety of convenient, cost-effective mobility opportunity for people and the movement of goods supporting economic development and improved air quality. Under RI General Law 31-18-21 (see Appendix C-1) RIDOT is authorized and directed to provide for the accommodations of bicycle and pedestrian traffic in the planning, design, construction and reconstruction, and to consider such in resurfacing and striping of any project unless it is determined that such access would be contrary to acceptable standards of public safety, degrade environmental or scenic quality, or conflict with existing right-of way. RIDOT Design Policy Memo 10-37 incorporates this law as part of project development.

RID0T Goals Related to Pedestrian Issues

> Rebuild the existing infrastructure.
> Deliver operating systems, services, programs and projects in the most cost-effective manner possible.
> Make public participation and a customer service focus integral parts of the development of RIDOT programs, projects and services.
> Provide employees with opportunities to enhance their level of preparedness and performance so they can do the best job possible in the duties they are assigned.

RIDO T Objectives/Performance Measures Related to Pedestrian Issues

> Enhance the ability of all transportation modes to serve Rhode Island's mobility needs.
> Where applicable, RIDOT will participate in public/private cost sharing projects.
> Continue involving the diverse interests of our customer base by: 1) providing opportunities for constructive participation in solving transportation problems and crafting appropriate solutions; 2) developing yardsticks by which to meter (measure) their degree of satisfaction with the services and products that RIDOT provides; and 3) provide the media and the public with comprehensive and timely information regarding RIDOT events, updates, and construction.
> Promote new technologies to better manage traffic on our roadways, to advance the economy of out State and provide motorists with opportunities to make informed traveling decisions.
> Provide additional transportation network capacity and mobility opportunities by employing system management techniques, augmented as necessary by selective system expansion investments.

* RI Department of Transportation Fiscal Year 1999 Financial Investments Program

Additional Goals for Improving Pedestrian Safety and Mobility in Rhode Island

In addition to the State Guide Plan and RIDOT's immediate goals, other systematic: goals include:

1. To reduce the number of pedestrian crashes, injuries and fatalities.

   It is the responsibility of all involved in the transportation business to reduce the incidence of deaths and injury. It is therefore a goal of this plan to improve the safety of all pedestrians.

2. To make all public facilities accessible by foot.

   As the state's population ages and the tourism industry grows, the temptation to meet the demand for new roads and facilities at the expense of the pedestrian will also grow. It may be very easy to deal the pedestrian out of the picture concentrating on accommodating the growing number of cars.

3. Create an urban, suburban, and rural environment that is conducive to walking, where feasible.

   The concept of liveable communities is growing in popularity throughout the nation as attention increasingly focuses on the problems associated with rapid growth. An integral component of this concept is the extent to which a community creates an environment conducive to walking. The characteristic of that environment will vary from community to community. What is important is that the liveable community recognizes the contribution walking makes to the quality of life and takes whatever steps are necessary to encourage people to walk.

Total Crashes: US vs. RI
1996-1998
Average Crash Rate/100,000 Residents

US	2,469
RI	2,086

PART III: The Data

The data used in this section of the plan were derived from the following sources:

- FARS (Fatality Analysis Reporting System)
- State of Rhode Island Accident Details Report for Accidents Involving Pedestrians
- National Highway and Traffic Safety Administration's :Traffic Safety Facts 1997 — A Compilation of Motor Vehicle Crash Data from FARS and the General Estimates System"

Pedestrian Crashes and Fatalities

A pedestrian is anyone traveling on foot. A pedestrian crash is a pedestrian coming in contact with a motor vehicle. Some pedestrian crashes result in fatalities. Bicycle crashes with motor vehicles are not included in the definition of pedestrian crashes.

RIDOT reviewed the traffic crash data from 1993 to 1999 as it applied to pedestrians. It should be noted that total crash data was available for the years 1993 to 1998 and the Fatality Analysis Reporting System (FARS) data was available from 1993 to 1999. FARS contains data on the most severe traffic crashes, such as those in which someone is killed.

	Crashes			
	1996	1997	1998	Percent Change
US	6,840,000	6,760,000	6,335,000	(7.3 %)
RI	20,682	21,088	20,149	(2.6%)

The trends in total crashes have steadily declined over the last 10 years in the United States. However, in Rhode Island the total crashes have increased 3.7% since 1993. The crash rate is based on the number of crashes per 100,000 residents.

Rhode Island Crashes 1993-1998

	1993	1994	1995	1996	1997	1998	Avg./Year
Total Crashes	19,427	20,447	20,496	20,682	21,088	20,149	20,382
Pedestrian Crashes	320	374	265	310	351	423	341
Pedestrians as a Percent of Total Crashes	1.6	1.8	1.3	1.5	1.7	2.1	1.7

Average Pedestrian Crashes Per Year	1993-1998
Average Pedestrian Crashes/Year	341
Average Pedestrian Fatalities/Year	13
Fatalities as a Percent of Total Pedestrian Crashes	3.8

Statewide, 3.8% of all pedestrian crashes resulted in a fatality

From review of the accident data, the following intersection locations have had multiple pedestrian crashes between 1994 and 1997. There were no fatal crashes at these intersections from 1993 to 1997. Many crashes actually occurred in parking lots near these intersections or at on street parking locations also near these intersections.

Nationally about 55 % of all pedestrian fatalities occur on neighborhood streets.[2] While vehicle miles of travel have steadily increased over time, people are apparently walking less and the amount of pedestrian exposure to vehicle traffic has decreased. According to the Insurance Institute for Highway Safety, bicyclists and walkers often take trips that are too short in length to be counted in national surveys.[3]

An increase in vehicle traffic volumes or speeds on a residential street increases the likelihood of a collision between vehicles and pedestrians. Where this occurs, the local street no longer serves its designated purpose of providing a safe and pleasant environment. If the triple threat of increased population, increased automobile ownership, and increased miles traveled per year continues it can be expected that traffic on local streets will continue to increase as the street's residents make more trips per day. Increasingly traffic congestion on arterials and collectors will lead to frustrated drivers to seed alternative routes through residential areas.

Multiple Pedestrian Crash Intersections

Central Falls Broad Street/Clay Street (3)	**Pawtucket** Dexter Street/Barton Street (3) Main Street/Roosevelt Avenue (4)
Cranston Reservoir Avenue/High School Avenue (3)	**Providence** Chalkstone Avenue/Raymond Street (3) Hartford Avenue/Bodell Avenue (3)
East Greenwich Main Street/Bridge Street (3)	**Warren** Metacom Avenue/Franklin Street-Libby Lane (3)
East Providence Pawtucket Avenue/Warren Avenue (4)	**Warwick** West Shore Road/Warwick Avenue-Warwick Neck Avenue (4)
Johnston Hartford Avenue/Atwood Avenue (3)	**Woonsocket** Mendon Road/Elder Ballou Meeting House Road (3) Diamond Hill Road/Rock Ridge Drive (3)

Because vehicle-pedestrian collisions on any given street tend to be infrequent, ranking sites on the basis of accident experience will generally not be helpful, especially since low accident counts can result from pedestrians avoiding the streets in self defense, rather than for benign traffic conditions.

Table 1	**PEDESTRIAN CRASHES 1993-1998**							
	= CALENDAR YEAR						6 YEAR TOTAL	PERCENTAGE OF TOTAL CRASHES
	1993	1994	1995	1996	1997	1998		
BARRINGTON	1	4	2	2	1	1	11	05%
BRISTOL	3	0	0	1	1	2	7	03%
BURRILLVLLE	5	0	2	1	3	1	12	06%
CENTRAL FALLS	15	13	13	8	11	9	69	34%
CHARLESTOWN	0	1	0	2	2	1	6	03%
COVENTRY	5	11	8	9	7	12	52	25%
CRANSTON	26	28	19	29	38	29	169	8.3%
CUMBERLAND	5	0	4	3	5	2	19	09%
EAST GREENWICH	6	8	3	6	4	0	27	13%
EAST PROVIDENCE	23	29	16	6	5	13	92	45%
EXETER	0	1	1	0	1	1	4	0.2%
FOSTER	0	0	1	0	0	1	2	0.1%
GLOCESTER	0	1	3	1	1	0	6	0.3%
HOPKINTON	3	0	0	1	1	1	6	03%
JAMESTOWN	1	1	0	2	1	1	6	03%
JOHNSTON	ii	10	8	10	7	9	55	2.7%
LINCOLN	3	9	4	5	2	4	27	13%
LITTLE COMPTON	0	0	0	0	0	0	0	0,0%
MIDDLETOWN	6	5	2	14	9	7	43	2.1%
NARRAGANSETT	4	2	2	3	1	0	12	0.6%
NEWPORT	12	15	24	21	22	21	115	56%
NEW 5HOREHAM	1	1	1	0	0	2	5	02%
NORTH KINGSTOWN	6	5	6	6	6	4	33	1.6%
NORTH PROVIDENCE	4	5	3	8	11	8	39	1.9%
NORTH SMITHFIELD	1	2	0	1	1	3	8	04%
PAWTUCKET	36	45	21	27	29	40	198	9.7%
PORTSMOUTH	3	3	3	2	0	3	14	07%
PROVIDENCE	49	82	29	40	82	126	408	20.0%
RICHMOND	1	1	1	1	1	1	6	0.3%
SC~TUATE	2	2	1	2	0	0	7	0.3%
SMITHFIELD	4	3	4	3	3	4	21	1.0%
SOUTH KINGSTOWN	5	4	5	4	6	8	32	1.6%
T~VERTON	1	1	2	0	3	3	10	0.5%
WARREN	5	3	5	8	7	5	33	1.6%
WARWICK	33	33	35	42	37	40	220	10.7%
WEST GREENWICH	4	3	1	3	3	3	17	0.8%
WEST WARWICK	0	1	0	0	0	1	2	0.1%
WESTERLY	13	13	8	10	14	14	72	35%
WOONSOCKET	23	29	28	29	32	43	184	9.0%
TOTAL		374	265	310	357	423	2049	100%

Providence had 20.0% of all crashes, followed by Warwick with 10.7% of the total. Over the six-year reporting period, all but Little Compton had at least one pedestrian crash. Total Rhode Island pedestrian crash data for the period 1993 to 1998 shows that 2,049 pedestrians were involved in crashes. On average there were 341 pedestrians involved in crashes each year in Rhode Island. FARS data shows that on average 13 pedestrians were killed in these crashes each year. This represents a rate of 3.8% of all pedestrian crashes resulting in a fatality. Based on the national criteria of fatalities per 100,000 residents, Rhode Island has 1.1 fatalities per 100,000 residents

while the national average was 1.93 fatalities per 100000 fatality. Based on the national criteria of fatalities per 100,000 residents, Rhode Island has 1.1 fatalities per 100,000 residents while the national average was 1.93 fatalities per 100000 residents (1998 Traffic Safety Facts). Table 1 shows the pedestrians crashes for 1993 to 1997 by city and town. Table 2 shows the pedestrian fatalities for 1993 to 1999 by city and town.

Table 2	FATAL CRASHES IN RHODE ISLAND 1993-1 999								
	CALENDAR YEAR							7 YEAR TOTAL	PERC:ENTAGEOF TOTAL FATALIES
	1993	1994	1995	1996	1997	1998	1999		
Barrington								0	
BRISTOL								0	
BURRILLVILLE		1		¯				1	1.1%
CENTRAL FALLS								o	
CHARLESTOWN					2			2	2.1%
COVENTRY	2	1	1				1	5	5.3%
CRANSTON		3	1				2	6	6.4%
CUMBERLAND			2					2	2.1%
EAST GREENWICH			1					1	1.1%
EAST PROVIDENCE		1					1	2	2.1%
EXETER		1						1	1.1%
FOSTER								0	
GLOCESTER								0	
HOPKINTON								o	
JAMESTOWN								o	
JOHNSTON							1	1	1.1%
LINCOLN	1		1					2	21%
UTTLE COMPTON								0	
MIDDLETOWN								0	
NARRAGANSETT				I				1	1.1%
NEWPORT		1	1			1	1	4	4.3%
NEW SHOREHAM								0	
NORTH KINGSTOWN	1							1	1.1%
NORTH PROVIDENCE				1				1	1.1%
NORTH SMITHFIELD		1		0		1		2	2. 1%
PAWTUCKET	1	1		4			3	9	9.6%
PORTSMOUTH		1				1		2	2.1%
PROVIDENCE	5	4	2	3	3	3	1	21	:223%
RICHMOND		1						1	1.1%
SCITUATE	1							1	1.1%
SMITHFIELD								0	
SOUTH KINGSTOWN			3	1		1		5	5.3%
TIVERTON								0	
WARREN			1		1			2	2.1%
WARWICK	1		3	3	1	4	3	15	16,0%
WEST GREENWICH								0	
WEST WARWICK				2				2	2.1%
WESTERLY		1						1	1.1%
WOONSOCKET				I			1	3	3.2%
TOTAL PED FATALITIES	13	17	16	16	7	11	14	94	100 2%

A total of 94 fatal pedestrian crashes were recorded over the 7 year period for an average of 13 fatalities per year. Providence, with 22% of all fatalities, and Warwick with 16% of all fatalities (total 38% of all fatalities) experienced about 31% of all pedestrian crashes.

The top ten cities and towns by crash occurrence was as follows: Providence, with the most crashes and the most fatalities, 5.1% of all crashes resulted in a fatality. Similarly in Warwick, 6.8% of all pedestrian crashes resulted in a fatality. However, South Kingstown with 32 crashes, (1.6% of total pedestrian crashes) had 5.3% of all fatalities.

This translates to the fact that 15.6% of all pedestrian crashes in South Kingstown resulted in a fatality. Similarly in Coventry, with 2.5% of all pedestrian crashes resulted in 5.3% of all fatalities. This represents that 9.6% of all pedestrian crashes in Coventry resulted in a fatality. This could be due to the more rural character of both South Kingstown and Coventry and the higher speeds of cars on their roads.

From 1993 to 1999 13 towns in Rhode Island did not record a pedestrian facility. Nine (9) cities and towns recorded one fatality and eight (8) cities and towns recorded two fatalities.

Pedestrian Fatality *Rate* lOO,000 Residents

	1996	1997	1998
Rhode Island	2.04	1.98	1.93
United States Average	1.62	0.71	1.11
National Rank	**23rd**	**1st**	**8th**

Rhode Island had the 23rd best fatality rate in the United States in 1996. In 1997, Rhode Island's rate of .71 fatalities per hundred thousand residents was the best in the United States. In 1998 Rhode Island's rate of 1.1 fatalities per hundred thousand residents was the best in the United States.

Based on the Federal Highway Administration (FHWA) Traffic Safety Facts for 1996 through 1998, the pedestrian fatality rate per 100,000 residents for U.S. fatalities averaged 1.93. The fatality rate for Rhode Island 1.14%, well below the national average.

The following table shows the national and state motor vehicle fatalities for 1997. The last available national data on fatal crashes is 1998.

Table 3 National and State Motor Vehicle Fatalities for 1998

	United States	Rhode Island
Driver	24,717	43
Passenger	10,617	19
Pedestrian	5,220	11
Pedacyclist	746	1
Other/Unknown	171	0
Total Killed	**41,471**	**74**

The AAA Foundation for Traffic Safety notes that nearly 10% of all the nation's pedestrian fatalities occur on the interstate highways even though the interstate system comprises only about 1 percent of the nation's total road mileage. Furthermore, 12 percent of all interstate traffic fatalities are pedestrians. The typical pedestrian involved is male, 25-34 years old wearing dark clothing.[5] The Transportation Research Board (TRB) in a recent publication noted that factors contributing to the crashes included pedestrian and driver alcohol use and poor light conditions. About 80 percent of the crashes involved pedestrians entering or crossing the highway. About 32 percent involved are unintended pedestrians — someone who had a broken-down vehicle, had been involved in a previous crash, or was walking or standing on the shoulder, but who did not set out to enter the interstate on foot.[6]

AGE DISTRIBUTION OF RI PEDESTRIAN FATALITIES

	93	94	95	96	97	98	99	TOTAL
< 5		2					1	3
5-9		1		1		1	1	4
10-15	1	1	1			1		4
16-20			4		1	2	1	8
21-24	1	1			1		1	4
25-34	2		3	2	1			8
35-44	3	1		4		1	2	11
45-54		3		1	2	1	1	8
55-64	1	2	2	5	1		3	14
65-74	2	2	3	2	1	1	2	13
> 74	3	4	3	1		4	2	17
TOTAL	13	17	16	16	7	11	14	94

Age Range of Fatalities in Rhode Island

0-20	20.2%
21-34	12.8%
35-64	35.1%
65+	31.9%

About half of motor vehicle deaths occur at night, death rates based on miles driven are about four times higher at night than during the day.[7] For the reporting period, Rhode Island fatalities occurred most frequently (44%) between the hours of 6:00p.m. and 12:00a.m. The fewest fatalities occurred between the hours of 12:00 a.m. and 6:00 am. (11%). About *58%* of all fatalities occur on weekends (Friday-Sunday). The oldest pedestrians are at the greatest risk of being involved in a crash, and once involved in a crash, are at the greatest risk of suffering injury and death. Pedestrians 65 years of age and older had the highest overall injury and fatality crash rates.[8] A recent TRB report noted that the elderly are less likely than other pedestrians to be involved in a crash, but once in a crash they are more likely to be killed. Pedestrians 65 or older have a fatality rate of 4.8 per 100,000 population, nearly twice the rate of 2.6 found in the overall population. I)deaths to older pedestrians are more likely to occur during the fall and winter, younger pedestrians (particularly 9 years or younger) experienced a greater percentage of injuries and deaths in spring and summer months. Elderly pedestrians often wear dark clothing in winter and many of these accidents involve left turning drivers who are paying attention to oncoming through traffic.1 Senior citizens (age *65* and older) comprise about 13 % of the total Rhode Island population and about 32 % of all pedestrian fatalities.

The growing interest in walking has led to a growing awareness of pedestrian safety problems. In 1998, 5,220 pedestrians were killed in the United States. This represents a *30.5%* reduction from 1975 when there were 7,516 fatalities. Table 4 shows the national pedestrian fatalities by age group for 1998. About 22% of all fatalities were senior adults over age *65* and 16.9% were children under the age of 21. About 42% of all fatalities were in the *35-64* age group. In Rhode Island a total of 11 pedestrians were killed in 1998, which is about 21% of the national total. Seven fatalities were recorded in the under 21 and over 65 age groups.

Seven fatalities were in the 21-64 age group.

Table 4 National Pedestrian Fatalities by Age Group for 1998

Age Group	Total	Percent of Total
< 5	170	3.2
5-9	202	3.9
10-15	208	4.0
16-20	301	5.8
21-24	253	4.8
25-34	680	13.0
35-44	934	17.9
45-54	728	13.9
55-64	521	10.0
65-74	460	8.8
> 74	708	13.6
Unknown	55	1.1
TOTAL	**5,220**	**100.0**

Table 5 shows that 20% of all pedestrian facilities in Rhode Island between 1993 and 1998 were infants and school aged children. Another *32%* were senior adults over age 65. The largest group of fatalities were in the 35-64 age group which represented 35% of all fatalities.

Table 6 shows the roadway functional classification for all national and state motor vehicle fatalities in 1998.

Table 6 Roadway Functional Classification for National and State Motor Vehicle Fatalities in 1998

Roadway Classification	United States	Rhode Island
Interstate		
Rural	3,095	4
Urban	2,272	12
Freeway & Expressway	1,283	8
Other	10,594	21
Minor Arterial	7,508	10
Collector	8,593	6
Local	7,330	9
Unknown	796	0
TOTAL	**41,471**	**74**

Pedestrian Behavior

There are many behavioral and environmental factors, which contribute to a pedestrian crash. In many cases the pedestrian does something unsafe, such as running out into a street without looking for traffic, or walking at night without reflective clothing or a flashlight. Motorists also do unsafe things such as drinking and driving, often rendering them incapable of controlling their vehicles. Another common behavioral error of motorists is failing to check for pedestrians before turning.

Senior adults are more likely to be involved in a crash occurring at an intersection. The most likely scenarios involve the pedestrian becoming trapped in an intersection after the signal turns, or being struck by a turning motorist. Children are more likely to be hit in a mid-block type of situation in which the child runs into the street. The motorist frequently cannot see the child until immediately before the collision.

Table 7 shows the pre-crash pedestrian action. This data was obtained from the fatal accident reporting system (PARS) for 1995-1998. A total of 64 of the 94 (62%) of the fatalities occurred during this **Period**

Alcohol as a Factor in Pedestrian Crashes

Table 7 Pedestrian Actions Prior to Fatal Crash in Rhode Island 1993-1999	
Pedestrian Action	**No. of Fatalities**
Interstate 9	
Crossing the interstate	2
Walking on Roadway (no breakdown lane or shoulder)	2
Standing next to broken down vehicle	1
Changing tire in breakdown lane	2
Previous crash (pedestrian standing in/near roadway)	2
Other Roadways 52	
Crossing street (in/out crosswalks)	32
Changing tire in breakdown lane	1
Walking/Jogging on road shoulder	7
Walking in roadway	3
Walking on sidewalk	1
Darting into street	3
Previous accident (pedestrian standing in roadway	1
Attempted to jump on moving snowplow	1
Attempted to stop runaway vehicle	1
Attempted to board moving vehicle	1
Vehicle stopped on shoulder to get mail/hit while trying to reenter vehicle	1
Transit 3	
Fell under wheels of bus	3

A growing pedestrian safety problem is the incidence of alcohol involvement in a fatal pedestrian crash. Of all of the U.S. pedestrian deaths, 22.1% involved drinking by the pedestrian. Since alcohol can affect judgment and reaction time, its use may be particularly hazardous to older pedestrians already experiencing age-related limitations in some of their physical abilities. Even relatively small amounts of alcohol can have exaggerated effects when used with some prescription medicines commonly taken by older adults. Dealing with the alcohol problem in pedestrian crashes is complicated by the fact that there are no legal restrictions against walking after drinking. Further, widely publicized campaigns to deter

drunk driving may in fact be contributing to the crash problem for pedestrians. Efforts to reduce drunk driving, such as revoking one's license, may convert a drunk driver to a drunk pedestrian.' About 25% of the fatalities in Rhode Island exceeded the .08 standard and about 20% exceeded the .10 standard. Of the 24 who met the .08 standard, 3 were school-aged children and two were senior adults over the age of 65. About 79% of all fatalities, exceeding the .08 standard, were in the 2 1-64 age group.

See Table 8 for fatalities by blood alcohol content.

Since there is no legal mandate to test drivers in pedestrian fatal crashes, there is very little data available on

Table 8

PEDESTRIANS:
BLOOD ALCOHOL CONTENT
0.08 STANDARD

	93	94	95	96	97	98	99	TOTAL
< 5								0
5-9								0
10-15								0
16-20			2				1	3
21-24	1	1		1	1			4
25-34	1		2					3
35-44	1	1		3		1		6
45-54		2		1	1			4
55-64		1		1				2
65-74			1	1				2
> 74								0
TOTAL	3	5	5	7	2	1	1	24
% OF FATALITIES	23.1%	29.4%	31.3%	43.8%	28.6%	9.1%	7.1%	25.5%

driving while Intoxicated, pedestrian fatality resulting. Data was reviewed for the years 1995-1999. Of the 64 pedestrian fatalities recorded during this period the following driver characteristics were found:

Drivers: Alcohol Related Fatalities 1995-1999 .08 Standard
• 6 drivers were tested – no alcohol found
• 3 drivers were tested – no results were given
• 2 driver tested positive – exceeded the .10 standard
• 1 driver refused the breathalyzer test
• 51 drivers were not tested
• 1 pedestrian was run over by own vehicle

PART IV: Pedestrian Facilities and Safety Issues

Trends

To understand the data, we must stop and take a look at the Rhode Island trends that are impacting on the pedestrian travel mode. These trends are derived from *An Analysis of* ***Rhode Island Land Use, December, 1998*** published by the Statewide Planning Program.

Population has increased but the rate of growth has slowed

The population growth in Rhode Island has been about 6% since 1970 which represents about 2% growth per decade. This level of low growth is a trend anticipated to continue into the next century.

Rhode Island has become more developed

From 1970 to 1988 Rhode Island's land area in developed use increased by 40%.

Development has in creased eight times faster than the population

Urban planners have adapted the concept of carrying capacity to describe the ability of natural and human engineered systems to absorb population growth or physical development without significant degradation or breakdown.[13] The acceleration of development over population growth means that the state's carrying capacity will be reached much sooner than \would be expected by population growth alone.

Population has migrated more toward the rural parts of the state

Population shifts document the suburbanization of formerly rural areas and the trend of migration from older cities (i.e., South Kingstown, Coventry and Cumberland). Several formerly suburban communities have become urbanized (i.e., Cranston, East Providence, North Providence, Warwick and West Warwick) because they have developed to the point where they fit the definition of urban.

Employment centers are expanding away from central cities

Between 1970 and 1988 commercial land use grew at a rate twice that of industrial use. Between 1960 and 1990 growth in both employment and number of businesses was greatest in the inner ring of communities around the older urban area.

Industrial land use has increased and moved farther into the suburbs

Power and water are available in more areas as public infrastructure has increased. Railroads and highways provide transportation alternatives. As population increased in suburban areas so did the availability of labor. The very nature of what is "industrial" has changed with technology and shifting economic forces. Suburban communities now have the advantage of possessing large tracts of land suitable for development and future expansion. New highways, public utilities and land use controls have added to the attractiveness of suburbia. Pedestrian amenities have not been included.

The most visible source of development is commercial land use

Unlike residential property, commercial land concentrates along the most heavily traveled roadways. As the population spread into less developed parts of the state, critical densities were reached that provided opportunities for business to both serve this population and thaw upon them as a labor force. Commercial development includes strip development along roadways, shopping centers and office development. The number of driveways along a roadway have increased and expanded safety concerns and issues for pedestrians and bicyclists.

The** amount **of land dedicated to transportation has increased

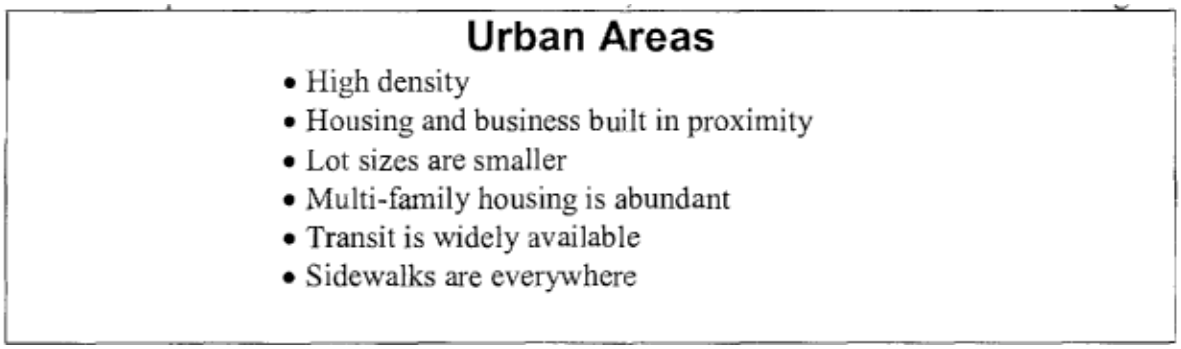
The out-migration from the cities, largely enabled by the automobile, has changed the map of Rhode Island in more than one way. The population shift toward suburban and rural municipalities resulted in significant growth in many individual communities. The cars that "drove" that growth pattern needed to travel on roads. Roads that were originally designed for light amounts of traffic soon exceeded their capacity to safely and efficiently handle the new pattern of commuting substantial distances from one's residence to one's job. Additionally, suburbanites continued to take advantage of other trip-generating aspects of the urban environment such as educational institutions, stores and cultural events. Commercial enterprises followed populations moving to suburban and rural communities. Roads became commercial strips for retail business. Successful suburban businesses became new trip generators, adding to the pressure for new and/or improved roads. Roads had additional lanes added and new roads were constructed. The most rapid increase in road construction occurred from the mid 1950s to the mid 1980s. Construction of the three interstate highways: 1-95, I-195 and I-295 were completed by 1975.

The Rhode Island transport system includes the state road network* (in route miles, not lane miles):

a. Three (3) interstate highways totaling 72 miles
b. Arterial and collector roads totaling 1,200 miles that are maintained by the State
c. Collector and local street totaling more than 4,800 miles maintained by 39 cities and towns.

The state is increasingly urban and there is a qualitative difference between the traditional central cities and the newly urbanized suburbs

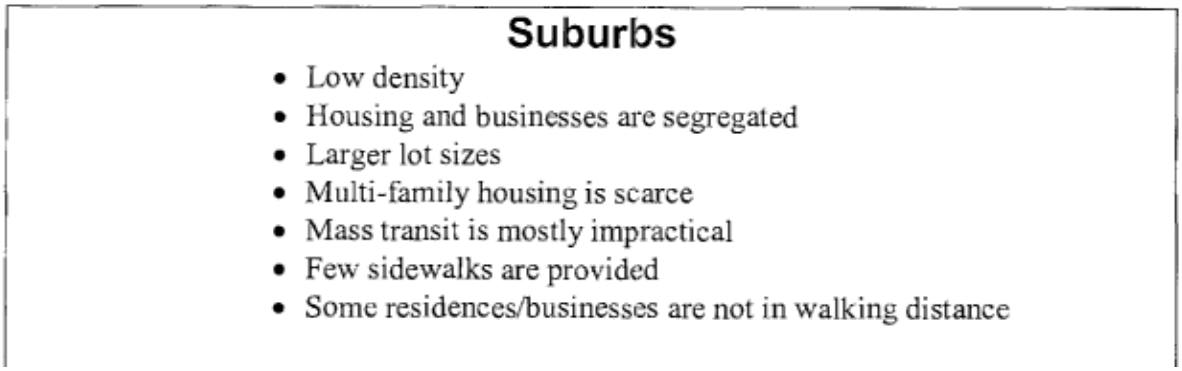
Certified public road miles as of 12/31/98 is 6,055. The difference is due to rounding.



The meaning of "urban" is based on a standard of a municipality having a population density of 2,500 or more persons per square mile and 50% or more of its land area classified as developed land. The state currently has ten communities which meets this standard. They are:

Traditional Central Cities	New Urbanized Suburbs
Central Falls	Cranston
Newport	East Providence
Pawtucket	North Providence
Providence	Warwick
Woonsocket	West Warwick

Our traditional cities were designed with high-density in mind from their inception. As such, businesses and residences are built in near proximity. Lot sizes are relatively small and multi-family housing is relatively abundant. Mass transit is widely available and sidewalks are everywhere. Neighborhoods have readily defined character and boundaries.



In contrast, suburbs were designed with low-density in mind. Housing and businesses are segregated. Lot sizes are relatively large and multi-family housing relatively scarce. Due to the low-density and scattered patterns of housing, mass transit is mostly impractical. Since residences and businesses are not generally within walking distance, few sidewalks are provided. Neighborhoods generally do not have a clear sense of identity and neighborhood boundaries are ill defined.

One is not inherently better than the other. Each was designed for very different purposes. Central cities were designed to bring people and commerce close together. Suburbs were designed to allow people to escape the perceived drawbacks of urban life. People could spend their days working and shopping in central cities but could spend their leisure time and raise their children in suburban bedroom communities. As people move to low-density rural communities, they begin to change the very characteristics that attracted them in the first place. At some point those characteristics are lost. Similarly, people living in suburbs found they missed the convenience of nearby shopping. Business enterprises filled this void by creating commercial strips along well-traveled highways. Municipalities in their efforts to increase the property tax base, encouraged ever more commercial and industrial development. In other words, urban land uses kept increasing, and thereby transforming suburban communities into urban communities without the pedestrian facilities such as sidewalks.

Pedestrian Transportation System

There is very little data on the level of walking in the United States. In analyses of work trips by mode, walking is usually lumped with bicycles, taxis and other modes of transportation. Frequently it is not reported at all. Bicycling and walking (1990 Census) make up 4.5% of the work trips in Rhode Island after driving alone (77.9%) and carpooling (12.1%). The average work trip takes about 19 minutes. Walking in the 1990 Census only looked at the work trip. It did not consider walking for shopping, recreation and other purposes. Walking is frequently identified as the most popular form of recreation. It is in the leisure area that walking has experienced the greatest growth. Walking is being embraced by senior adults because of its aerobic and therapeutic benefits.

Higher densities and closely linked destination points make walking an efficient way to cover short distances. Many older downtown areas and central business districts provide the environment that is conducive to walking, with sidewalks provided on most streets.

A typical urban pedestrian transportation system involves three basic elements:

a. sidewalks or walkways
b. mid-block or intersection corner, holding or queuing area; and
c. pedestrian crossing of roads, railway lines, or other physical features of the transportation network.

Pedestrian as a Safety Hazard

- Major component of traffic flow in urban areas
- Most unpredictable due to unrestricted mobility
- Multiple travel paths and acts that a pedestrian can perform

Travel by pedestrians is the most common mode of transportation throughout the world. Pedestrian traffic is a major component of traffic flow, especially in urban areas. It is also the most unpredictable component of the roadway environment due to the generally unrestricted mobility, travel paths, and actions that a pedestrian can perform. In the United States, the safe and efficient movement of motorized vehicles has been emphasized with the accommodation of pedestrians generally made a lower priority. This has forced the interaction of the pedestrian on a level with its most pervasive threat, the motorized vehicle. The pedestrians with their inferior operational characteristics are forced to enter the roadway, the domain of the vehicle, and compete.[9] The pedestrian is often looked on as a traffic "flow interruption."[2]

Rhode Island includes over 1,200 state roadway miles. Of this amount, more than 400 miles have sidewalks with the majority of sidewalks in older urban areas. Many of the existing sidewalk facilities do not comply with the requirements of the Americans with Disabilities Act (see Appendix B). Excessive slopes, obstructions, inadequate widths, and poor surface condition typically characterize sidewalks. Most existing sidewalk facilities will require some level of renovation to achieve compliance with ADA. For example, in Providence County, approximately 30,000 locations are in non-compliance, distributed over 283 miles of sidewalks. Existing wheelchair ramps comprise about 5,000 of these out of compliance locations. RIDOT estimates that it would cost more than *$65* million to implement proposed ADA improvements in Providence County alone.

Route directness and completeness of pedestrian facilities (both block size and sidewalk length) affect pedestrian volumes. Given appropriate land use conditions and pedestrian facility improvement programs, suburban areas can support pedestrian travel and have a significant influence on mode choice. No single variable can explain pedestrian volumes; differences in site design between urban and suburban sites significantly affect pedestrian volumes. Most pedestrians in suburban sites use streets that have sidewalks. The majority of pedestrian trips to a commercial center occur along commercial streets, in both suburban and urban sites. Increasing suburbanization has been accompanied by a continued decrease in walking, yet walking remains second only to cars as a means of transport.[10]

Urban design theory offers that people prefer to be in places that are highly stimulating to their senses and the quality of the pedestrian experience is crucial to increasing walking as a transportation mode. We have seen this with *Water fire* in downtown Providence. Dead, dark uninviting areas limit pedestrian volumes.

Results support the conclusions that neighborhood transportation, land use, and design characteristics influence walk distance, duration, purpose, and a number of secondary activities:

a) In traditional neighborhoods, walkable distances, access to transit, shops, and work are important as is the opportunity to be outdoors. In these physically accessible neighborhoods with more pedestrian oriented features, walks are predominantly short and frequent utilitarian trips that involve more secondary activities, or greater walk magnitude;
b) In modern neighborhoods, walkway continuity, trees, and interesting things to look at have more important environmental attributes, as is the opportunity to maintain health. Activity in these less accessible neighborhoods, with more automobile oriented features, is characterized by longer, less frequent recreational walks of a lower magnitude[12]; and

c) Pedestrian activity in rural areas is limited because of few pedestrian oriented features and travel distances tend to be great.

State highways and local roads with wide paved shoulders usually provide adequate room for walking. Many older roads and highways are narrow, with poor sight distances, do not serve pedestrians well. Where population densities and roadside activity are sufficiently high, these areas deserve special consideration when planning for pedestrian access. Providing paved shoulders as part of standard construction practice will benefit touring, recreational and commuter cyclists and the occasional pedestrian, while improving safety for motor vehicle traffic.

Issues Which Impact on Pedestrian Safety

Land Use and Density

Many land use practices in Rhode Island have resulted in long distances between origin and destination points, requiring an automobile. For most trips, people are unwilling or, in some cases, unable to walk long distances. Most of the suburban development in this state has been designed for ***low-density*** land use with significant distances between most origins and destinations. Residential areas are routinely located several miles from shopping and jobs. Low-density zoning disperses development and results in longer trips. Greater resources are required to support a more dispersed development. People are forced to drive further. This reduces the importance of the neighborhood shopping center. Since transit generally does not serve intra-suburban travel very effectively, people are forced to use their car for most trips.

Zoning for *high* ***densities*** of employment, housing and mixed-use development could create a more pedestrian and bicycle-friendly environment by placing origin and destination points closer together. This can be done more easily in new developments, but can be retrofitted into established areas with neighborhood commercial zoning.

Pedestrian Access

Walking is not considered to be a viable access mode to most shopping malls, office complexes, or other public spaces. These developments are located well off the street with ample parking in front of these developments. Pedestrian access is not provided, even though there may be considerable latent demand. Examples in Rhode Island include RI-2 in Warwick, the Lincoln Mall, and the Lincoln Office Park. No guidance or protection is provided to a pedestrian trying to cross the enormous parking lots that stand as a barrier between the arterial streets and the regional shopping center.

Every driveway creates an obstacle for pedestrians and bicyclists. Driveways also restrict traffic flow along roadways. RIDOT is beginning an initiative to preserve highway corridors through highway access management. One strategy employed in access management is to restrict the number of driveways connecting to a roadway. Reducing the number of driveways and limiting access from one or more directions improves pedestrian and bicyclist safety and comfort.

Transit Interface

Transit use is highly dependent on pedestrian access. The adjacent land use must also be conducive to transit use. Bus stops located in areas where the wait is unpleasant, with inadequate protection from the weather, reduce transit use. Shelters (with schedules and fare information), benches and lighting increase the comfort of transit users. Unfortunately, in RI some routes are located on streets without sidewalks and there are bus shelters (e.g., RI-116 in Lincoln) with no sidewalk leading up to them.

Walking and transit make an ideal transportation combination when conditions are right. Encouraging pedestrian access to transit centers reduces the need for automobile parking. However, the success of transit is less likely with a more dispersed approach to development. Widely dispersed origins and destinations greatly reduce the efficiency of transit. Therefore, service to these widely dispersed areas frequently does not meet the needs of those who would consider using transit in lieu of their automobiles For the transportation disadvantaged, who do not have access to a personal vehicle, the lack of transit makes it difficult, if not impossible, to take advantage of the growing job opportunities in the suburban areas using standard transit services.

Sidewalk/Design and construction

Sidewalks are often considered optional features of roadway projects and will be included if the city or town requests them and if space and dollars permit. Sidewalks tend be a lower priority when it conies to allocating limited transportation funds. The work done for sidewalk construction and reconstruction varies with the nature of the highway project.

When private developers request a Physical Alteration Permit (PAP) to access a state roadway, RIDOT attempts to ensure that pedestrian issues are addressed with sidewalks and curb cuts, where appropriate. RIDOT reviews commercial requests and plats while considering: traffic flow, curb cuts, drainage and sidewalks, if existing. Where there is a proposed change to use of a parcel, there is no requirement for the addition of sidewalks. Where extensive improvements are proposed, RIDOT may recommend the construction of sidewalks.

For full reconstruction projects the complete roadway system is rebuilt including existing sidewalks or new sidewalks installed if the city or town wants them. Cities and towns are the ones that decide if sidewalks are needed. In the design of such projects, RIDOT will examine the needs of the driver, pedestrian and bicyclists. RIDOT will make a recommendation for new sidewalk construction but will leave it up to the community to make the final decision on the installing of a sidewalk. Community input is important because it can best assess the needs of its residents. Also via State law, the community will ultimately be responsible for maintenance of these sidewalks after construction. For roadways without a shoulder, RIDOT may recommend a shoulder for use as a breakdown lane, and for use by pedestrians and bicycles.

Reconstruction projects are expensive and take a long time to go through the planning and design stages. They generally involve utility relocation, linear retrofit to achieve ADA compliance and drainage improvements. Because of the cost of reconstruction projects, the State Transportation Improvement Program that establishes RIDOT's work plan is emphasizing the much less expensive roadway improvement of resurfacing in lieu of reconstruction projects. These resurfacing projects are basically a form of structural maintenance and no detailed pedestrian safety analysis is performed. Such projects do include curb and sidewalk repair where sidewalks already exist, and address ADA requirements along the corridor.

These resurfacing projects do not include the installation of sidewalks where they do not exist because of difficulty in project development as well as cost. The installation of new sidewalks entails the taking of property, obtaining wetlands permits from the Department of Environmental Management (RIDEM), rerouting drainage and the resolution of archeological/historical issues with the Rhode Island Historic Preservation Commission.

For new roadway or intermodal facility projects, a full analysis of the pedestrian needs is performed in the Environmental Impact Statement (ETS) or Environmental Assessment for the project. Sidewalks and other pedestrian facilities will be incorporated into the project as appropriate. Examples of such projects include the Warwick Intermodal Facility or the Quonset Access Road.

Sidewalks are more costly to build than to resurface a street. RIDOT estimates that it costs about $100,000/mile to resurface a two-lane road and $200,000 for a four-lane road (i.e. Smith Street). The cost to rebuild a curb and sidewalk is about $300,000 to $500,000/mile. A wholly new sidewalk is even more expensive to construct per mile.

Project Downsizing

The downsizing of projects from full reconstruction to resurfacing either because of cost or to avoid environmental effect, has impacted pedestrians because that part the project that is eliminated is often of direct benefit to pedestrians and bicyclists.

Ministerial Road in South Kingstown is an example of a roadway project which was changed from a reconstruction to a resurfacing due to public concern over the environmental impact. In that project, only minor improvements were made to the roadway design — it was basically resurfaced as is. Pedestrian travel improvements such as broader shoulders to walk on and safer sight lines were not provided. On the other hand, the recent Cowessett Road reconstruction project successfully included sidewalks in an aesthetically and environmentally acceptable fashion in a semi-rural/suburban area.

In order to reduce the cost of roadway construction and right-of-way acquisition, the sidewalks are often developed very close to the curb or against it. While not the optimum condition, in some instances this does provide some sidewalk facility that may not have been present earlier. This practice poses significant safety hazards for a pedestrian walking in close proximity to high-speed traffic *(45* mph or greater). This is especially a problem for both children and senior adults. Young children do not have well-developed depth perception and peripheral vision. They also lack a good ability to determine the source of sound. These physical deficiencies are compounded by the fact that small children do not have much experience in traffic and do not appreciate the seriousness of vehicle safety. Senior adults, who may feel unsure of their footing, are reluctant to walk so close to high speed traffic for fear they might fall into the path of a vehicle.

Construction Zone Hazards

Maintenance of traffic plans for buildings and roadways during construction often do not adequately address pedestrian needs. Typically during the construction of a downtown building the sidewalk is closed for the entire frontage of the site. The sidewalk is closed to provide equipment and materials storage so that it will not interfere with motor vehicle traffic. The pedestrian however is denied access to the sidewalk during these periods and is forced to either walk in the street or to cross the street mid-block to reach the sidewalk on the other side, if one is available there. We have seen this during the construction of the Providence Place mall and the Marriott here in Providence.

Sidewalk Obstacles

Historically, the design process used by many public agencies involves, in essence, engineers setting the locations of drainage structures and other utility features early in the process such as trying to retrofit structures made in one era to accommodate current needs. It is not unusual to have poles and drainage structures located where the handicap

ramps and sidewalk should be located. In addition to the actual difficulty this creates for walking, the cost of moving the structures is very high.

In review of the ADA design standards against the existing sidewalks in Providence County (see Appendix B), most handicapped accessible curb cuts and sidewalks do not meet the ADA standard for just these reasons. There are a number of examples in Rhode Island including a light pole providing an obstruction for a wheelchair user at the Francis and Smith Street intersection. Once the project is complete and the utility obstacles are created, there is great expense to go back and move them to avoid the conflicts. Building new sidewalks for ADA access is easy, retrofitting existing sidewalks is very difficult and costly.

Sidewalk obstacles are sometimes put into place by private property owners. An example would be trash compactors on sidewalks.

Sidewalk maintenance is the responsibility of local governments. These governments have limited abilities to properly maintain sidewalks due to inadequate resources for sweeping to remove buildup of sand from winter road treatments and other debris, failure to enforce sidewalk snow removal requirements, and an inability to repair/replace tread/walking surfaces.

When developers request a Physical Alteration Permit (PAP) to access a state roadway, RIDOT will ensure that pedestrian issues are addressed with sidewalks and curb cuts, where appropriate.

Roadway Design

With the demand for more capacity, many arterials and collector streets for new developments are being widened to accommodate turning movements. These three to five lane streets pose significant barriers to pedestrians. The density and speed of traffic, the distance to be crossed, and the distance between controlled intersections frequently force individuals to use their cars to travel very short distances. Median strips or islands, which can provide a safe refuge for pedestrians, frequently are eliminated to provide left turn lanes or more through lanes.

Disconnected Streets

Disconnected streets and cul-de-sacs create long travel distances, even though the actual distance from origin to destination may be fairly short, making walking impractical. A grid street system provides continuity for pedestrians along the shortest routes; lacking this, disconnected streets can be improved with connecting paths.

Street Crossings

The Transportation Research Board has noted that pedestrian crashes occur most often in urban areas than in rural areas and older adults have the highest percentage of fatalities occurring in urban areas. Older adults are over-involved in crashes while crossing streets at intersections and are less able to safely negotiate wide streets because of their slower walking speeds and diminished abilities to handle complex traffic conditions.[1] wide multi-lane roadways are difficult to cross on foot. Crossing opportunities can be provided with techniques such as raised medians, refuge islands, curb extensions and pedestrian signals, where appropriate.

Intersections

Intersections built for the movement of motor vehicles can be very difficult for pedestrians to cross. A network of streets with sidewalks and bike lanes does not fully accommodate pedestrians and bicyclists if the intersection presents obstacles. Improvements for pedestrians include refuge islands, shorter crossing distances, reduced curb radii, crossings at right angles and slower traffic speeds. Grade-separation for pedestrians at intersections is extremely expensive and difficult to justify.

Building Orientation

Buildings that are set back from the road with large parking lots in front are uninviting and difficult for pedestrians to access. Buildings close to, and oriented toward sidewalks, with parking in the rear or on the side, are more likely to encourage pedestrian use and are more transit-friendly *(e.g.,* Garden City in Cranston).

Traffic Noise and Perception of Danger

Roadways with sidewalks directly adjacent to noisy, high-speed travel lanes are perceived by most people as being undesirable for walking. Greater separation, as with planting strips (especially with trees), and slower traffic speeds increase the level of comfort for pedestrians.

Lighting

Dark streets may intimidate people at night; good lighting can make pedestrians feel safer.

Topography

Road designers and engineers have very little control over the natural lay of the land, and residential areas built in hilly terrain will generate less potential foot traffic than those built in flatter areas.

Traffic Control Problems

Most senior adults and mobility impaired pedestrians walk much slower than the average pedestrian. This fact is sometimes ignored when the signal timing is determined. There is a trade-off in setting the signal timing, increasing the timing for *walk* phase's decreases the timing for automobiles to pass through the intersection and can create traffic backups. Often, painted crosswalks and pedestrian signal features are not provided at signalized intersections. In some cases, they are omitted because there is no foreseen demand for them. In other cases, these features are omitted for safety and/or operational reasons. Some intersections are just deemed unsafe for pedestrians to cross, Operational reasons can include timing problems, turning vehicle conflicts, or signal phasing operations which would conflict with pedestrian features.

Many traffic signal installations incorporate design features that block the view for pedestrians of the vehicular traffic signal lights. There are various types of signal heads and traffic signal head span arrangements which have created this situation. Without any view of the traffic signals the pedestrian cannot make an accurate determination whether he can legally cross the street. This creates an obvious safety problem and also confirms the attitude that pedestrians are not considered part of the transportation system.

The placement of the pedestrian push buttons at traffic signals, in many cases, has contributed to pedestrian disregard for the traffic signals. The pedestrian is often confronted with situations where explanation signs are missing or confusing, pushbuttons are hidden behind poles, or push buttons are inaccessible (e.g., during construction of adjacent buildings). These situations cause the pedestrian to walk whenever s/he thinks it is safe or clear even though s/he does not have the right-of-way. In some cases pedestrians may be unwilling to wait for the signal phase to change and disregard this safety feature.

The meanings of the various pedestrian signal head indications may not be well understood by pedestrians. The solution to this problem is education and better signing and signalization displays. Although education is the most effective solution, there are changes that could be made in the signing and signalization that could improve the comprehension and educate the pedestrian.

Intersections are the most convenient locations for bus stops and truck loading zones. The intersection approach area provides a natural place to pull over to the curb because curb parking is already prohibited for sight distance and turning radius. The placement of loading zones at intersections has the least effect upon on-street parking since it needs the least additional parking prohibitions for maneuvering **into** and out of the zone. The loading zone does create a hazard for the pedestrian, however, who must walk around the parked vehicle to determine if there is approaching traffic. Another frequent practice is to place bus stops on the upstream approach, or nearside, of the intersection. This allows the bus to stop and load when it is stopped by a traffic signal. However, this action can obscure the view of vehicles attempting to make a right turn on red from the crossing street. It also blocks the vision of any pedestrians attempting to cross the street downstream of the bus. Pedestrians are placed in the undesired position of stepping out into traffic to see safely upstream.

Odd geometry intersections and roadways present the greatest difficulties to pedestrians. Odd geometry intersections are hazardous and confusing to pedestrians because they have unusual traffic signal phasing operations. Normally there are not obvious walking routes across the legs of the intersection. It is at these types of intersections where the pedestrian needs the most guidance and assistance in crossing the street and actually receives the least.

The placement of stop bars has not always considered the pedestrian. The placement of the stop bar as close to the crossing travel lane as possible leaves no safe place for the pedestrian to safely walk in front of stopped traffic. Similarly, the sight distance for a stopped vehicle can be blocked when the sidewalk is offset more than a few feet from the curb. The sight distance obstruction is caused by placing the crosswalk and stop bar so far from the crossing travel lanes that view obstructions are created. While stop bar placement may be a problem at some intersections without crosswalks, those at intersections with crosswalks, the stop bars are properly placed.

Planning Processes

Private development currently drives land planning. Public agencies respond slowly to change. Land use plans prepared by public agencies are constantly being modified by land rezoning. Various city, town and state agencies each have responsibilities for various planning activities. They frequently have conflicting goals and suffer from coordination and jurisdictional problems. Automobile concerns such as parking requirements, can occasionally be lost in the shuffle in these situations. Pedestrian concerns, which are not on anyone's priority list, usually are. The comprehensive plan legislation mandates planning by local agencies to address regional, state and local goals and policies. The legislation mandates consistency in development with the comprehensive plan. Local governments will no longer be able to approve rezoning, site plans and other private development plans if they are inconsistent with the comprehensive plan or if the government agencies can not provide the required level of service standards. It is hoped that the comprehensive planning process will help some of the past coordination problems between permitting, planning and transportation.

School Access

Few children are injured by cars during opening, recess and closing times at school. More children are injured en route to or from school, but not near the school. A greater number are injured while playing after returning home from school than are injured during trips to and from school combined. Dart-outs, other non-intersection crossings, and playing in the street are the principal crash types for children. Modem child safety education taught in schools has been shown to be effective in reducing child pedestrian crash rates. . .teaching children the physical skills they need — find the edge, look left-right-left, find an acceptable gap, and cross the street while continuing to scan — is effective, because it gives them an understanding of how to locate hazards and avoid crashes."

Institutional and Attitude Impediments

The underlying problem that is perhaps at the root of the other obstacles identified above are what appears to be a general apathy among the public, including drivers, and public officials concerning pedestrian safety issues. It is clear that until there is public interest in and demand for pedestrian rights, very little can be accomplished to increase walking in the State. The key elements of the institutional and attitude impediments to increased walking are:

1. Low government priority: Pedestrian safety countermeasures can be costly but are effective ways of reducing highway fatalities. Few States or communities are committing limited funds to implement these proven safety programs. The reason cited for this is almost always the same — pedestrian safety is not a priority when measured against concerns such as drunk driving, speeding, or safety belt usage. Similarly, although it is generally acknowledged that walking serves as an integral part of every trip, expenditures to provide much needed facilities for such as sidewalks, cannot be justified against other priorities such as bridge repair, roadway repair or new construction.

   The minimal allocation of police resources to enforce pedestrian laws and ordinances is also attributed to the low priority accorded pedestrian safety when compared with violent crime, drug interdiction, and other traffic violations. The effect of this low priority accorded pedestrian transportation is in the allocation of funds, the availability of adequate staff resources, and in the provision of professional training on pedestrian transportation.

   Traffic flow and vehicular safety are the primary concerns of traffic engineers and planners. Training of engineers and planners tends to focus on these issues and not the design of pedestrian sensitivity in other designs. Sensitivity of highway designs on pedestrian safety, access or comfort, may not be stressed due to the larger issue of competing modes – vehicular versus pedestrian.

2. Lack of Awareness and Acceptance of Pedestrian Safety Problems: There is a prevailing view that very little can be done to reduce pedestrian crashes because pedestrians cannot be controlled. Pedestrian crashes are viewed by many communities as unfortunate but inevitable. It is a common view that pedestrians will find a way around every barrier put up to prevent them from crossing at an unsafe location. Unfortunately, this sometimes justifies doing nothing further to prevent the pedestrian from crossing rather than inspiring a creative solution to make the location inherently less dangerous.

3. Public Apathy: Local governments are allowed to overlook the concerns of pedestrians because there is no one urging them to take action. Pedestrians are viewed as being infinitely adaptable — able to accommodate a wide variety of inconveniences and hazards without much difficulty, and without much complaint. Pedestrians tend not to complain if they are put into jeopardy, but motorists are sure to protest if they are caught up in traffic delays. Government agencies tend to respond to the constituency that is complaining. Since there are many voices demanding more roads, less crime, and more money spent on schooling, it is easy to see why pedestrian issues may have fallen by the wayside. Motorist ignorance of the rules of the road regarding pedestrian right of way and lack of sensitivity by the driving public has put pedestrians in unsafe conditions.

   Unlike bicycling which has benefited from an organized and vocal constituency, walking has suffered from the fact that people who walk do not recognize themselves as part of a group. Since everyone walks, there has not been any organizing influence that could represent the interests of such a large and diverse population. The growing interest in walking for exercise and recreation, might serve as the impetus for establishing special interest groups that can speak on behalf of pedestrians.

The establishment of such advocacy groups at the community level is essential for walking to be fully integrated into the transportation system.

The obstacles identified above are perhaps the most noteworthy of the factors that discourage walking as a viable mode of transportation. They pose significant challenges but they are not insurmountable. Overcoming them will require a concerted effort in both the public and private sectors to change fundamental attitudes about transportation and to commit the resources necessary to make walking safe, convenient, and enjoyable.

PART V: Recommendations

The first step in accomplishing the goals established in this plan is to make a formal commitment to pedestrian transportation. Without this formal commitment the recommendations articulated below are no more than a series of good ideas. The format commitment to pedestrian transportation is needed to transform ideas into reality.

Pedestrian transportation must be elevated to a priority level equal to that of the automobile and transit.

If transportation deals with the movement of people and goods, then pedestrian transportation deserves equal status with automobile and transit. Every trip involves walking, making it the most pervasive form of transportation. Despite the flexibility of pedestrians, they are more vulnerable to failures in the transportation system particularly when they result in collisions with motor vehicles.

Given the fact that the pedestrian has been overlooked for so long, it may be necessary to compensate for the prior inequities by recognizing those situations in which the pedestrian should be given higher priority than other modes. This may be the case where there is a particularly hazardous situation that can only be improved by restricting motor vehicle access, or when the volume of actual or potential pedestrian travel warrants creating an exclusive pedestrian environment. According equal status to pedestrian transportation will require a fundamental change in the way state and local agencies do business. It will not be a quick change, but it needs to be more than an evolutionary process.

The recommendations will be grouped into the following categories:

A. Coordination/Implementation: communication among agencies and organizations that have roles to play in pedestrian safety
B. Planning: developing data, priorities and plans to provide a foundation for projects and programs
C. Engineering: physical and land use improvements
D. Encouragement/Promotions: actions to promote walking
E. Education and Training: professional training and public safety education
F. Enforcement: adherence to regulations that apply to both motor vehicles and pedestrians.

Coordination/Implementation

Will there be a constituency for pedestrians? Who wilt coordinate the safety-related efforts of engineering, planning, enforcement and education in Rhode Island? Who will provide input on local and state planning issues and initiatives to improve walking facilities?

The variety of isolated pedestrian safety programs and projects must be coordinated to insure that they effectively address the critical safety needs, and expanded to insure that all residents of the State are addressed through these measures. An effort must be made to coordinate the safety-related activities of the engineering, enforcement, and education agencies throughout the State to insure that all agencies are playing an active and effective role. This will require coordination at the Federal, State and local levels. Efforts must be made to insure that neighboring jurisdictions coordinate their efforts for maximum effectiveness.

Establish an ongoing committee to provide advice on pedestrian issues.

This group could be a component of the Governor's Commission on Highway Safety or the State Traffic Commission which could provide technical assistance to state and local governments and agencies with a role in pedestrian transportation and safety.

Provide technical assistance to cities and towns, the Green ways Council and other groups, obtain input on local and regional planning issues and initiatives to improve walking facilities, particularly through the local comprehensive planning process.

Work with local "citizen-led" advocacy groups that can speak on behalf of pedestrians to integrate walking into the transportation system.

Planning

How will pedestrian planning be integrated into all transportation and land use planning processes? How will pedestrian safety be recognized as a critical problem in Rhode Island and implementation of its solution a priority? Who will work to ensure that there are sufficient sidewalks in school areas? Who will provide technical assistance to municipalities for zoning ordinances that provide incentives for developers to do more for pedestrians?

RIDOT will work with the State Traffic Commission, cities and towns and other interested state agencies, including, RIDEM, RIPTA, RISPP, RIIDOH and the Greenways Council to provide a comprehensive network of walkways and bikeways throughout the state. Deficiencies should be identified and projects prioritized and developed to make needed improvements.

New policies and zoning ordinances must be developed at the state and local level that acknowledge the importance of walking to the viability of a community. These policies and ordinances must establish a new priority level for the needs of pedestrians in the planning and design of new developments, in the design and construction of new streets and highways, and in the plans and goals for the revitalization of urban areas.

Pedestrian planning considerations must be fully integrated into all transportation and land use planning processes.

With equal priority to other modes, pedestrian considerations are included from the very beginning in needs analysis. Every new project should be viewed as an opportunity to examine and improve pedestrian safety, access or comfort.

Land use planning processes should fully integrate pedestrian considerations from the outset. Pedestrian amenities often have been used as bargaining chips in development negotiations. The amenities offered are little more than that, optional frills such as flower boxes or benches that contribute little to solving the real problems of pedestrian access. With the commitment to pedestrian issues, developers would be required to address pedestrian safety, access and comfort in a truly meaningful fashion from the very beginning of their planning efforts. The commitment to higher density usage in order to encourage more walking trips would be reflected in zoning ordinances and clearly communicated to potential developers.

Lay boards which administer the development review process at the local level *be made* ***aware of and have access to, detailed planning and design standards to effectively integrate pedestrian considerations*** in ***to the development process.***

There is no state program of direct planning assistance at present to provide such technical assistance. Possibly the state coordination group could sponsor the development of a short video to be presented at workshops for local officials.

Pedestrian *safety* ***in list be recognized as a priority*** **in** ***Rhode Island for all appropriate government agencies.***

Zoning ordinances should provide incentives for developers to motivate them to do more than the minimum required for pedestrians.

Developers should be given incentives for the construction of sidewalks, pedestrian amenities, or pedestrian circulation facilities along roadways where they otherwise would not be required. The developers should be provided with an incentive for constructing sidewalks for existing needs when it would be difficult to require them for just their development. The incentive could be either a reimbursement of the construction costs later or development bonuses. The development bonuses could permit higher effective floor area ratio (F.A.R.) or taller buildings. If the incentive is a financial "rebate", the incentive or reimbursement should pay for the entire cost of the sidewalk if there is a preexisting need or the location is one that would not normally be eligible for a publicly funded construction project. As an example, a minor collector street may not be required to have sidewalks under the sidewalk policy. Therefore, a developer who provided sidewalks on such a street would be reimbursed fully. The basis of this recommendation is that the public is receiving a benefit from the developer.

Handicapped access shall be guaranteed** by **ensuring that all pedestrian facilities accommodate the needs of the physically challenged.

The presence of special types of pedestrians can pose unique challenges to the transportation system. The needs of blind, deaf, senior adults, and the wheelchair bound are very different than those of an average mobile pedestrian. These groups of pedestrians have a variety of limitations such as limited motor skills, poor eyesight, limited stamina, and limited reaching ability.

*Where **appropriate, limit/reduce the number of driveways along a roadway and/or limit access points to the roadway from one or more directions to improve pedestrian and bicycle safety and comfort.***

Sidewalks should be provided within sc/tool areas, and pedestrian safety concerns should be addressed** in **the site selection criteria for all** new **schools.

The construction of any school facilities should include provisions for all pedestrian facilities that might be needed. School zones are areas where the largest concentrations of children are congregated. The sidewalks in school zones provide very distinct and separate areas for pedestrians. The absence of sidewalks in school areas usually forces pedestrians to walk on the next best surface — usually the street. The mix of elementary age children and vehicles in the street is an extremely dangerous situation. It is only reasonable that schools be required to provide the same degree of improvements that developers and even state agencies are required to provide.

The State, in conjunction with local** planning **amid public works departments, should begin a pilot program to establish school trip safety committees.

These committees would review all traffic aspects of a school. The committees would establish a comprehensive plan for safe walking routes. Any changes in traffic control, construction, enforcement, and education would be jointly agreed upon and coordinated together. The committees would be comprised of police, State officials, local traffic engineer, teachers, school board members and parents.

Encourage local municipalities to inventory their walking infrastructure (collectors and local streets) for their comprehensive plan. Identify walking characteristics and locations, with land use that make them suitable for walking.

- Identify high priority needs for pedestrian walking improvements and missing links in the system.
- Target pedestrian improvements for Transportation Enhancement Project grants.
- Strengthen state guidance for local comprehensive plans to direct local governments to plan for pedestrian mobility and safety in a comprehensive fashion to enhance opportunities for pedestrian and intermodal travel.
- Plan and identify areas where traffic calming strategies are appropriate and needed to enhance pedestrian safety and mobility.
- Plan for higher density; mixed use development patterns; and planning transit oriented developments.

- Plan neighborhood and community greenways, bike paths and walkways.

- Adopt requirements for planning and design standards for pedestrian through routes or footpath connections in all new developments/redevelopments.

Continue to improve crash data reporting including modifications to make the reporting form more suitable to computerized information systems. Develop a system for ongoing data reporting and distribution.

- Train state and local police to complete accident reports accurately (including site specific data and conditions).

Develop methods to accommodate pedestrians in highway-oriented commercial develop,;: cuts.

Engineering

Provide safe, accessible and convenient walking facilities and to support and encourage levels of walking.

RIDOT and local communities should work towards integrating walking facilities with other transportation systems. The first step towards this is to examine pedestrian facility needs into all planning, engineering, construction and maintenance activities of RIDOT, local governments and other transportation providers.

Specific design features should be routinely considered in project design where appropriate:

1. **Retrofit of existing roadways with paved shoulders,** bike lanes, sidewalks and safe crossings to accommodate pedestrians.
2. **Creation of safe, convenient and attractive walking environments.**
3. **Provision of uniform signing** and marking of all walkways
4. **Signage improvements,** including, walk on left facing traffic, no left turn or no turn on red signs.
5. **Installation of sidewalks** or walkways in residential and suburban areas.
6. **Signalization —** signals must be timed to provide adequate crossing time. For visually impaired pedestrians, signals that uses a voice, buzzer or other sound.

7. **Pedestrian refuge islands —** install pedestrian refuge islands (safety islands) between opposing traffic lanes within an intersection.
8. **Roadway lighting —** provide adequate street lighting.
9. **Overpasses/underpasses —** a passageway for pedestrians located one or more levels above or below the vehicle level.
10. **Pedestrian malls —** the closing of streets to motor vehicles to provide for an environment that is partially or totally for pedestrians.
11. Interstate improvements **—** common countermeasures include emergency call stations, roving roadside assistance vehicles, and emergency cellular telephone numbers to report disabled vehicles. Other measures to be considered include educational programs and access barriers.

A regular program of maintenance should be undertaken of state and local roads to preserve bikeways and walkways in a smooth, clean and safe condition.

Urban walkways should be provided and/or improved:

As part of road construction/reconstruction projects: RIDOT should continue to incorporate needed pedestrian facilities on construction, reconstruction and relocation projects. Facilities may be provided on local streets that provide a better alternative to the highway.

As part of a resurfacing project: As part of Federal Resurfacing projects, walkways should be evaluated for their potential for pedestrian improvements. These include bringing sidewalks up to ADA standards, or restripe a road to provide bike/pedestrian lanes. Due to limited funding, sidewalks are not normally addressed as part of State Resurfacing projects.

By developers as part of the Physical Alteration Permit (PAP) process: Where **feasible, RIDOT should** encourage developers to provide needed pedestrian facilities **when modifications are made to the road. Incidental projects such as utility work should** also be viewed as opportunities to make improvements. If a developer touches a sidewalk, RIDOT will make them bring the sidewalk up to ADA standards.

By restriping roads with bike lanes: RIDOT should continue its practice of restriping highways **with bike lanes after** overlay projects, where feasible, or retrofit bike lanes **through stripe removal and repainting.**

As stand-alone bikeway and/or walkway projects (within right-of-way): RIDOT, in cooperation with local jurisdictions, should continue to develop projects to construct bikeways and walkways where critical sections of the State Bicycle system are missing. The primary purpose is to provide bicycle and pedestrian facilities. These projects are not generally associated with other highway improvements, but other needs may also be considered.

RIDOT will continue to insure that pedestrian needs are incorporated from the outset of the roadway design process to avoid conflicts, particularly in the areas of requirements for drainage, utility, placement, setback, etc.

All public roadway projects in urban areas should include sidewalks on both sides of the roadway if it is above the classification of minor collector. RIDOT should work with local communities to implement this policy in context of the Transportation Improvement Program (TIP).

Lack of well designed sidewalks pose the most significant barrier to safe pedestrian travel. This roadway type encompasses the majority of situations where sidewalks are needed for safety, recreational, and pedestrian demand reasons.

The State should consider funding a sidewalk program. The prioritization of sidewalk projects could include the following factors that would improve urban and suburban walkability:

- *Pedestrian accidents*
- *Pedestrian volume*
- *Potential demand from nearby land uses, including commercial property*
- *School sites and school hazardous walking zones*
- *Route continuity to complete sidewalks*
- *Recreational and tourism areas*

Funding for these projects could come from the Federal 1R, ADA, and/or Enhancement Programs.

Width of existing sidewalks should be increased as needed to account for reductions in walking space due to obstructions.

Construction of bus stop shelters should provide for sidewalks** in **both directions and appropriate street crossing facilities.

Crosswalks should be considered whenever circumstances suggest pedestrian demand or the need for crossing assistance. Crosswalks should be excluded in non-hazardous areas.

***Other pedestrian crossing aids, such as pedestrian signals, pushbuttons, raised median strips, mid-block crosswalks and signals, should be installed wherever pedestrian activity can be expected, including within one mile of** any **public facility, such as shops, schools, offices, etc. The Manual on Uniform Traffic Control Devices (MUTCD) standards will have to be** met.*

All existing pedestrian facilities should be examined to determine that they meet the** minimum **standards for handicapped access. MUTCD standards will have to be met.

Traffic calming strategies should be used where warranted.

Traffic calming can be defined as physical or psychological designs, backed by appropriate signage, that help to control or manage vehicular traffic volumes and speeds, wherever appropriate, to ensure a more equitable use of the streets as public places. The major objectives of traffic calming are to improve road safety by reducing the number of accidents for all types of users through slower speed; to enhance the quality of life by controlling the volume of traffic; to reduce automobile use by facilitating transit access; W encourage pedestrian and bicycle use; and to reclaim the street as a multi-use public place.'[2] Traffic calming measures continue to attract the interest of both transportation professionals and neighborhood activists, but at present, there is neither commonly agreed on set of warrants for these measures nor an accepted rational procedure for prioritizing locations for improvements.[4]

Encouragement/Promotions

The State and individual communities should launch a coordinated campaign to encourage walking for transportation and recreation. A major focus of this campaign should be to inform the public about what is being done to make it safer and more enjoyable to walk.

Pedestrian safety is essential to reduce the rate of pedestrian fatalities and to address disincentives to walking in the state. To reap the maximum benefit that walking can offer to the quality of life in the community, the population must be encouraged to consider walking for more of their short trips. They must be convinced that there are safe places to walk and that steps have been taken to ensure that most, if not all, public facilities are accessible on foot. Finally they must be alerted to the contribution they could be making to the lifestyle of their community just by walking. Such a campaign should include a combination of public service announcements, brochures or pamphlets, and a coordinated program to place articles about the benefits of walking in major newspapers and magazines throughout the state.

Maps, signs and kiosks should be used to *inform* ***pedestrians of the best routes to take when walking to the various possible destinations in the downtown areas or in new office park developments. The information should include estimated walking time as well as the availability of amenities along the way.***

The public relations campaign can provide motivation to consider walking as an alternative mode for some short trips. Motivation is not enough however. Since pedestrian routes are not necessarily the same as an auto route to the same destination, new pedestrians need assistance in planning their walking trips. Since pedestrians feel particularly vulnerable outside the steel protection of their cars, it is particularly important to inform them of what they are likely to encounter along their route. Providing information at easy to use kiosks in the downtown area and in widely distributed walking maps makes it easy for individuals to determine the best route to take when they walk to work, the store, or the park.

Develop local walk and bicycle to school maps in conjunction with walking and bicycling safety programs. Distribute the maps to families with young children to teach them the safest routes to school.

Publicize a statewide campaign to reduce alcohol-related crashes. Address and publicize the issue of alcohol-impaired pedestrians.

Develop legislation to mandate that all drivers as well as pedestrians in fatal crashes are tested for alcohol/drug abuse.

Develop legislation to remove sidewalk obstacles placed by private property owners on sidewalks. This practice

should be unlawful avid penalties should be assessed.

Education and Training

Provide safe, accessible and convenient walking facilities and support and encourage in creased levels of walking.

As part of an ongoing educational and training program, educational programs that improve pedestrian safety should be developed. This could include a walking safety education program to improve skills and observance of traffic laws, and promote overall safety for pedestrians. In addition a safety education program targeted at motor vehicle drivers to improve awareness of the needs and rights of pedestrians should also be developed and implemented.

An ongoing system must be established to monitor and analyze pedestrian crash data to formulate ways to improve pedestrian safety.

A statewide public information and education campaign should be launched to inform the general public and local officials of the significance of the pedestrian transportation in the quality of life in Rhode Island. This campaign should document the benefits of walking to a community and recommend the strategies that can be undertaken to achieve a more walkable environment.

All traffic engineers and transportation planners involved in the planning and design of public facilities should be provided training in sensitivity to pedestrian needs and facilities This training should not be limited to those who have a specific responsibility for pedestrian planning or design.

The full integration of pedestrian needs into the transportation system can only be accomplished when everyone involved in the planning and design process fully understands what needs to be done to make the community walkable and is committed to achieving that goal. That level of understanding and commitment depends on a solid educational foundation. Unfortunately pedestrian issues do not appear to be adequately covered in most undergraduate and graduate planning and education course work.

Traffic safely education, including pedestrian and bicycle safety principles and practices, should be provide to all school-aged children aged 5-13.

Walking and bicycling are essential modes of transportation for school-aged children. Yet because of the low priority accorded these modes of transportation and the demands placed on classroom time, traffic safety education may not receive adequate attention to prepare children to operate independently in traffic. An important side effect of an early traffic safety education effort is that children will be better prepared to assume the responsibilities of motor vehicle operators and perhaps less likely to become traffic statistics during their first driving years. Driver awareness programs should stress sensitivity to pedestrians who share the same facilities.

A public information program directed at parents should be developed to alert parents to the specific traffic risks their children are subject to and to the specific steps they can take to increase their safety.

Due in part to the lack of attention paid to traffic safety education by the schools, most parents are unaware of the risks facing their children when they walk or bicycle in or near the street. Parents tend to overestimate the ability of their children to interact safely with traffic. For example, young children under age nine may not accurately determine what is an acceptable gap for crossing a street when traffic is present. Young children may have difficulty pinpointing the origin of sound and their peripheral vision is not fully developed. These characteristics make it very unsafe for children under the age of six to cross any street unsupervised. Yet many parents let their children play near the street with nothing more than the admonition to watch out for cars. To combat this lack of awareness of the traffic safety problem for young children, Rhode Island should launch a campaign to educate parents about the risks their children face and to provide them with resources and suggestions on what they can do to minimize this risk. This campaign could include public service announcements, seminars offered by the Parent Teacher Associations, and pamphlets and brochures that describe appropriate parental actions.

Senior adults should be provided information through a variety of media on the problems they face as they walk, and on the best ways to improve their personal safety and in mobility.

Many pedestrian-motor vehicle crashes are caused by unsafe pedestrian actions, and older adults are among the most common violators. Printed materials, presentations at senior centers, PSAs, and the Walk Alert Pedestrian Safety Program are measures that can be taken to improve safety. In-school child education programs are noted above. Since senior adults are going through a period of transition involving changes in their physical capacity, daily routines, and mobility, there needs to be a special campaign launched through a variety of media to alert them to the specific problems associated with walking, and provide them with suggestions on how to minimize the risks associated with walking while obtaining the maximum benefits. Successful campaigns have included special presentations designed for delivery at senior adult communities and recreation centers, and educational pamphlets that could be distributed at doctor's offices, clinics and hospitals.

Motorists must be advised of their serious responsibilities for pedestrian safety and offered suggestions on how best to avoid pedestrian collisions.

While it is true that in many pedestrian crashes the motorist had very little time to react to a pedestrian that appeared suddenly in the path of the automobile, there are specific actions that a motorist can take to minimize the risk of a pedestrian collision. These could include reducing speed through residential neighborhoods, taking one last look for pedestrians before making turns, being particularly alert when passing stopped traffic, and checking carefully for pedestrians when backing up or driving in a parking lot. The underlying theme of all these actions is that the motorist should always assume that a pedestrian could suddenly appear. Motorist education can be accomplished through PSAs, particularly on radio to reach motorists while they are driving. Enhanced pedestrian safety information should also be included in the driver's manual and in driver education programs.

Training should also be offered to community officials to inform them of the overall benefits that a comprehensive pedestrian transportation program can offer the community and the principal obstacles that must be overcome in order to realize those benefits. These training programs should incorporate the state-of-the-art in new design approaches and the innovative techniques that have been employed in other cities and abroad.

Enforcement

Enforcement of traffic laws, particularly those affecting pedestrians, must be made an on—going priority within the police community.

Pedestrians and motorists alike operate on the assumption that pedestrians are not serious participants in the traffic system, since violations of the laws affecting pedestrians are routinely overlooked by police officers. Resolution of this problem will not be easy. Police resources are severely limited and there is not much community support for pedestrian enforcement campaigns when violent crime and drug use command attention. Mechanisms need to be explored which can establish a perception of police commitment even if the resources are not available to fully support that perception. The first element that can be established with minimal resources is the high-level policy commitment to pedestrian needs. An expression of the importance of the pedestrian safety problem by the Chief of Police will convey the message to the public and to the rank and file officers that pedestrian violations are taken seriously. Implementation of selective enforcement strategies - at dangerous intersections, near a senior center or shopping center- might be targeted.

Law enforcement personnel should be provided regular, mandatory training on the most critical traffic violations affecting pedestrian safety, and the most effective strategies for conducting a pedestrian enforcement program.

This is an essential corollary to the previous recommendation. The most critical element of a pedestrian enforcement campaign is awareness of and commitment to the pedestrian safety problem by the police officers themselves. If this can be established through training and high level policy statements, the police officers can find numerous opportunities to convey their personal

commitment to pedestrian safety to the public at large. By concentrating on the most critical traffic violations affecting pedestrian safety, the training will be communicating to the officers that they need only address a small number of violations to have a profound impact on the crash problem. This concentration of limited resources will help to establish a critical police involvement in the pedestrian transportation program.

Carryout enforcement operations to vehicle operators who fail to yield and to pedestrians who violate laws.

A listing of relevant state general laws governing pedestrians and related issues can be found in Appendix C.

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APPENDICES

A. Bibliography

B. The Americans With Disabilities Act: Walkway Inventory and Review

C. State General Laws Governing Pedestrians and Related Issues

APPENDIX A:
BIBLIOGRAPHY

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APPENDIX B:
The AMERICANS WITH DISABILITIES ACT (ADA)

Kent	132.06	NA
Washington	315.00	23.29*
	1,127.94	403.10+

*includes the towns of Charlestown, Hopkinton, Richmond, S. Kingstown and Westerly. No data is available for Block Island, Exeter, Narragansett and West Greenwich.

In general the existing sidewalk facilities do not comply with the requirements of the ADA. Sidewalks are typically characterized by excessive cross slopes, obstructions, inadequate width, and poor surface condition. Obstructions range from tree branches and signs to utility poles and fire hydrants. Existing ramps vary widely in their noncompliance. Slopes often exceed the allowable maximums, obstructions block ramps and adequate landing areas are rare. These observations suggest that most existing sidewalk facilities will require some level of renovation to achieve compliance with ADA. Problems, which may be encountered in attempting to meet these standards, include matching existing grades at walks, driveways and doorways, exiting mature trees within the sidewalks and insufficient right-of-way. For example, in Providence County approximately 30,000 locations are not in compliance, distributed over 283 miles of sidewalks. Existing wheelchair ramps comprise about 5,000 of these out of compliance locations. A preliminary cost estimate to implement proposed ADA improvements is over $65 million.

Project Summary

The primary objective of the design study is to evaluate and document the existing conditions of all sidewalk facilities and bring them into compliance with the requirements of 36 CRF Part 1191, the Americans With Disabilities Act Accessibility Guidelines for Buildings and Facilities; State and Local Government Facilities; and the Interim Final Rule.

The sidewalk facilities encountered varied greatly in material, condition, width and slope, ranging from new concrete sidewalks with complying cross slopes to deteriorated bituminous walks of uncertain width and almost completely obscured by vegetation or silt and sand deposits. In Providence County there were more than 2,000 obstructions within the sidewalk areas including restrictions to the 36” minimum continuous passage due to 505 utility poles, 277 mailboxes, 86 hydrants, 69 signs, *56* shrubs and hedges, 43 trees, 32 tree wells, and various other obstacles. More than 375 changes in grade greater than that allowed by the ADA were identified, and head room is reduced to less than 80 inches by 350 instances of overhanging tree branches. The remaining obstacles (more than 300) are distributed over several diverse types of instances, with no appreciable quantity for any one type. A fully compliant continuous passage was not identified along any State roadway within Providence County. Many of the roadways had very few curb ramps, and none of the ramps reviewed for the study complied with all of the requirements of ADA.

In addition to sidewalk information, data was collected for every driveway, curb ramp, bus stop and obstruction. Driveways were evaluated for continuous passage width, cross slope, side slope, and condition. At each ramp, data was collected for slopes, landing presence and size, ramp width, and length and crosswalk location. The location of each bus stop encountered was recorded, and the critical dimensions of existing bus shelters were measured. Whenever an obstruction was encountered within the sidewalk, it was identified by location, type and nature of obstruction.

In developing the recommended improvements, several guidelines were established to provide consistency throughout the study. All sidewalks proposed for replacement will be replaced with new Portland cement concrete walks to ensure that once improved, they will remain in compliance with the ADA for many years. Bituminous walks lack the long-term durability to achieve this goal. The minimum width for new sidewalks is 5 feet, assuming that adequate right-of-way is available on all roadways. Sidewalks to remain in place must be greater than *5'* wide, new concrete, have granite or good concrete curb, and a cross slope of less than 3%. Although this exceeds the allowable cross slope, the public perception of the replacement of an essentially new facility with a nearly identical sidewalk could jeopardize the success of the entire project, and therefore it is recommended that this minor non-conformance he allowed to remain. For purposes of the design study, the assumption was made that all obstructions will be relocated or removed to create a continuous passage. Because little right-of-way information is available at this time, no cost for such action has been included in the conformance estimates.

Prioritization

Establishing priorities for accessibility improvements in a region is a complex and imposing task; the opportunity for prejudicial judgements exists and must be avoided at all costs. The basic premise for supporting this priority system is that roadways, which provide high levels of mobility are, associated with greater levels of development and dense population centers. The proposed ranking system first considers the functional classification of the roadways, weighing a principal arterial roadway more heavily than a minor arterial, and a minor arterial more heavily than a collector roadway. Within the same functional classification, an urban roadway will rank higher than a rural roadway. The next level of ranking is based upon the condition of the existing sidewalk facilities. Sidewalks in poor condition would be targeted for replacement sooner than those in fair or good condition, and the cost to eliminate existing obstructions may also be figured into this level of ranking. The proposed ranking for Providence County is as follows:

1. Providence
2. Cranston
3. Pawtucket
4. East Providence
5. Woonsocket
6. North Providence
7. Cumberland
8. Johnston
9. Smithfield
10. Lincoln
11. Central Falls
12. Burrillville
13. North Smithfield
14. Scituate
15. Glocester
16. Foster

Cost Estimates

The following is the estimated cost to implement the proposed ADA improvements for the sidewalks along state-owned roadways in Providence County:

Burrillville	$ 1,606,300
Central Falls	499,100
Cranston	7,470,400
Cumberland	6,192,400
East Providence	8,383,700
Foster	-0
Glocester	597,300
Johnston	7,290,900
Lincoln	4,419,500
North Providence	6,691,300
North Smithfield	2,190,700
Pawtucket	3,272,200
Providence	8,388,800
Scituate	723,800
Smithfield	3,718,800
Woonsocket	3,636,800
Providence County Total	$65,082,000

APPENDIX C:
STATE GENERAL LAWS GOVERNING PEDESTRIANS AND RELATED ISSUES

The following General Laws of the State of Rhode Island applies to pedestrian and pedestrian related issues:

Title 31: Motor and Other Vehicles

3 1-1-17. Types of persons.

(g) *Pedestrian.* Any person afoot.

3 1-1-23. Types of roads defined.

(d) *Sidewalk.* That portion of a street between the curb lines, on the lateral lines of a roadway, and the adjacent property lines intended for the use of pedestrians.

> The term sidewalk is given a specific meaning within this section. It is the portion of the highway that is adjacent to the roadway. Together, a sidewalk and a roadway make up a highway or a street. (Alfano v Landers, *585* A.2d ***651,*** RI 1991)
>
> Elevated divider separating two portions of a parking lot could not be considered a sidewalk, where the parking lot itself could not be considered a roadway use for vehicular traffic. (Alfano v. Landers, *585,* 2d 651 RI 1991)
>
> *(j)Bicycle trail or path.* A separate roadway designated by the state or local governments to be used solely by bicycles. Where such a trail or path forms a part of a highway, is separated from the highway by an open space or barrier.

31-1-25. Crosswalk. (a) That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs, or in the absence of curbs, from the edges of the traversable roadway.
(b) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.

31-1-26 Safety zone. The area or space officially set apart within a roadway for the exclusive use of pedestrians and which is protected or is so marked or indicated by adequate signs as to be plainly visible at all times while set apart as a safety zone.

31-1-29. Traffic. Pedestrians, ridden or herded animals, vehicles, and other conveyances either singly or together while using any highway for purposes of travel.

Title 31, Chapter 16: Starting, Stopping, and Turns

31-16-2. (1) Right turns. Pedestrians intending to cross a lane of traffic which is required to stop or yield by a red traffic light, stop or yield sign or other traffic control device shall be granted the right of way.
(2) Left turns on two-way roadways, Pedestrians intending to cross a lane of traffic, which is required to stop or yield by a red traffic light, stop or yield sign or other traffic control device shall be granted the right of way.
(3) Left turns on other than two-way roadways Pedestrians intending to cross a lane of traffic, which is required to stop or yield by a red traffic light, stop or yield sign or other traffic control device shall be granted the right of way.

31-16.6.1. Penalties. Any person who violates the provisions of section 31-16-2 pertaining to the right of way of pedestrians upon conviction thereof; shall be sentenced to pay a fine of not more than fifty *($50).*

Title 31, Chapter 17: Right-of-Way

31-17-2. Vehicle turning left or right. The driver of a vehicle within an intersection intended to turn to the left or right shall yield the right of way to any vehicle approaching from the opposite direction which is within the intersection or so close thereto as to constitute an immediate hazard or shall yield to a pedestrian intending to cross within a crosswalk which the driver of the vehicle must travel to make such left or right turn, but the driver, having so yielded and having given a signal when and as required by chapter 16 of this title, may make the left or right turn, and, the drivers of all other vehicles approaching the intersection from the opposite direction shall yield the right of way to the vehicle making the left or right turn.

3 1-17-4. Vehicle entering stop or yield intersection. (a) preferential right of way at an intersection may be indicated by stop signs or yield signs.
(b) except when directed to proceed by a police officer or traffic-control signal, every driver of a vehicle approaching a stop intersection indicated by a stop sign shall stop at a clearly marked stop line, but if none, before entering the crosswalk on the near side of the intersection, or if none, then at the point nearest the intersecting roadway where the driver has a view of approaching traffic on the intersecting roadway before entering the intersection. After having stopped, the driver shall yield the right of way to any pedestrian intending to cross the lane of traffic in a crosswalk or any vehicle which has entered the intersection from another highway or which is approaching so closely on the highway as to constitute an immediate hazard during the time when the driver is moving across or within the intersection.

(c) the driver of a vehicle approaching a yield sign shall, in obedience to the sign, slow down to a speed reasonable for the existing conditions and, if required for safety to stop, shall stop at a clearly marked stop line, but if none, before entering the crosswalk on the near side of the intersection, or, if none, then at the point nearest the intersecting roadway where the driver has a view of approaching traffic on the intersecting roadway. After

slowing or stopping, the driver shall yield the right of way to any pedestrian intending to cross the lane of traffic in a crosswalk or any vehicle in the intersection or approaching on another highway so closely as to constitute an immediate hazard during the time such driver is moving across or within the intersection.

31-17-5. Entering from private road or driveway. The driver of a vehicle about to enter or cross a highway from a private road or driveway shall yield the right of away to all vehicles approaching on the highway and to all pedestrians attempting to cross the private road, driveway or highway.

31-17-5.1. Penalties. Any person, who violates any provisions of sections 31-17-1, 31-17-2, 31-17-3, 31-17-4, or 31-17-5, pertaining to the right of way of pedestrians upon conviction thereof, shall be sentenced to pay a fine of not more than fifty ($50).

Title 31, Chapter 18: Pedestrians

31-18-1. Application of regulations to pedestrians. Pedestrians shall be subject to traffic control signals at intersections as provided in sections 31-13-6 and 31-13-7, unless required by local ordinance to comply strictly with the signals, but at all other places pedestrians shall be accorded the privileges and shall be subject to the restrictions stated in this chapter.

31-18-2. Local ordinances. Local authorities are hereby empowered by ordinance to require that pedestrians shall strictly comply with the directions of any official traffic control signal and may by ordinance prohibit pedestrians from crossing any roadway in a business district or any designated highways except in a crosswalk.

31-18-3. Right-of-way in crosswalk. When traffic control signals are not in place or not in operation, the driver of a vehicle shall yield the right of way slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway upon which the vehicle is traveling, or when the pedestrian is approaching so closely from the opposite half of the roadway as to be in danger but no pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impossible for the driver to yield. This provision shall not apply under the conditions stated in section 31.18-6.

> Pedestrian who had to watch traffic from three directions while entering crosswalk had the right to assume that vehicle would comply with this section (Downes v. United Electric Railway, 80 RI 382, A.2d 107, 1953). Generally speaking, a pedestrian on a crosswalk has the right-of-way, but he must still be watchful for his own safety (Green v. Tingle, 92 RI 393, a.2d 373, 1961)

31-18-4. Overtaking of vehicle stopped for pedestrian. Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass the stopped vehicle. Whenever there are no markings to the

contrary, there shall be a presumption that there is an unmarked crosswalk at any intersection.

31-18-5. Crossing other than at crosswalks. Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right of way to all vehicles upon the roadway.

31-18-6. Crossing where tunnel or overhead is provided. Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right-of-way to all vehicles upon the roadway.

31-18-7. Crossing between intersections. Between adjacent intersections at which traffic control signals are in operation, pedestrians shall not cross at any place except in a marked crosswalk.

31-18-8. Due care by drivers. Notwithstanding other provisions of this chapter or the provisions of any local ordinance, every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian or any person propelling a human-power vehicle upon any roadway, and shall give an audible signal when necessary and shall exercise proper precaution upon observing any child or any obviously confused, intoxicated, or incapacitated person. [Child playing ball in street; coaster or coasting in street; collision with pedestrian due to swaying or swinging of motor vehicle or trailer; construction or maintenance worker in street or highway; duty of motor vehicle driver approaching place where children are playing or gathered; injury to person who, after falling in street, is struck by automobile; liability for injury to pedestrian growing out, pulling out, of parked motor vehicle; liability for injury to pedestrian incident to towing automobile as affected by contributory negligence; person intending to board, or alighting from, streetcar or other public conveyance as "pedestrian" with respect to rights given, and duties imposed, by traffic rules and regulations; physical disability of pedestrian struck by automobile as affecting liability for injury; sidewalk, injury to person on, by road vehicle; and traffic officer, liability to injury.]

31-18-9. Right half of crosswalks. Pedestrians shall move, whenever practicable, upon the right half of crosswalks.

31-18-10. Walking in street prohibited. Where sidewalks are provided it shall be unlawful for any pedestrian to walk along and upon an adjacent roadway. Where sidewalks are provided it shall be lawful for a person to run or jog along and upon an adjacent roadway, and if the person shall begin to walk he or she shall walk upon an available sidewalk.

31-18-11. Walking, jogging, or running on left.
(a)Where sidewalks are not provided any persons walking, jogging, or running along and upon a highway shall, when practicable walk, jog, or run only on the left side of the roadway or should be facing traffic which may approach from the opposite direction, provided, that, under no circumstances shall anyone walk, run or jog on any interstate highway within this state.
(b) Any person jogging or running during the time from one-half hour after sunset to one-half hour before sunrise, shall, in addition, wear reflective material which is visible by

low beam headlamps from a distance of at least 500 feet, provided that in no event, shall the failure to wear

reflective clothing be considered as contributing negligence, nor shall the failure to wear reflective clothing be admissible as evidence in the trial of any civil action.
(c) Any person who violates the provisions of this section shall, upon conviction, be fined $15.00; provided that, if the person has been charged with failure to wear reflective material they shall be issued a citation. If any person issued a citation presents proof of purchase of reflectorized clothing or the minimum amount of reflectorized material to the issuing police department within 10 days, the department shall void the violation. Should an individual issued a citation fail to present said proof of purchase within the time prescribed herein, they shall be fined $15.00. The fine shall be paid by mail and paid to the division of administrative adjudication of the department of administration and shall not be recorded on the driving record of the violator.
(d) Any person found to have violated the provisions of this section more than once shall, upon conviction, be fined $25.00 for each subsequent conviction.31

31-18-11.1. Severability. If any portion or provision of sections 31-18-10 and 31-18-11 is found by a court of competent jurisdiction to be invalid, the remaining parts or provisions shall remain in effect.

31-18-12. Hitchhiking in road. No person shall stand in a roadway for the purpose of soliciting a ride from the driver of any vehicle.

31-18-13. Use of white cane restricted to blind persons. It is unlawful for any person, unless totally or partially blind, while on any public street or highway, to carry in a raised or extended position a cane or walking stick which is white in color or white tipped with red.

39-18-14. Full stop for pedestrian with guide dog or white cane. Whenever a pedestrian is crossing or attempting to cross a public street or highway guided by a seeing-eye dog or a hearing-ear signal dog clearly identified as such by a yellow harness, which has been trained and educated to guide and assist the pedestrian in traveling upon the public streets; or carrying in a raised or extended position a cane or walking stick which is white in color or white tipped with red, the driver of every vehicle approaching the intersection, or place where the pedestrian is attempting to cross, shall bring his or her vehicle to a full stop before arriving at such intersection or place of crossing, and before proceeding shall take such precautions as may be necessary to avoid injuring the pedestrian.

39-18-15. Blind or deaf pedestrians not guided by dog or carrying white cane. Nothing contained in section 31-18-13 to 31-18-16, inclusive, shall be construed to deprive any totally or partially blind or deaf person, not carrying a cane or walking stick, or not being guided by a dog, of the rights and privileges conferred by law upon pedestrians crossing streets or highways, nor shall the failure of the totally or partially blind, deaf, or otherwise incapacitated person to carry a cane or walking stick, or to be guided by a guide or signal dog upon the streets, highways, or sidewalks of this state, be held to constitute nor be evidence of contributory negligence.

C-5

31-18-16. Penalty for violations as to blind persons. Any person who violates any provision of section 31-18-13 to 3 1-18-15, inclusive, upon conviction thereof, shall be sentenced to pay a fine not more than two hundred fifty dollars ($250).

31-18-16.1. Failure to stop on red signal for blind person at intersection. Any person who shall violate the

provisions of section 31-18-6(3)(i) at an intersection where a pedestrian is crossing or attempting to cross a public street or highway guided by a seeing-eye dog or a hearing-ear dog, clearly identified as such by a yellow harness, which has been trained and educated to guide and assist him in traveling upon the public streets, or carrying in a raised or extended position a cane or walking stick which is white in color or white tipped with red shall be fined not less than $500 nor more than $1,000.

31-18-17. Pedestrians on freeways, Any pedestrian who shall cross any freeway as defined by section 24-10-1, except in an emergency or to render assistance in case of an accident or unforeseen cause, shall be deemed to be guilty of a misdemeanor.

31-18-18. Right-of way on sidewalks. The driver of a vehicle crossing a sidewalk shall yield the right of way to all traffic proceeding along and upon the sidewalk.

31-18-19. Negligence of children, A violation of any provision of this chapter by a child under the age of 14 shall not constitute negligence per se although such a violation may be considered as evidence of negligence.

31-18-20. Motorized wheelchairs Rights and duties. Every person operating a motorized wheelchair upon a sidewalk or roadway shall be granted all the rights and shall be subject to all the duties applicable to a pedestrian.

31-18-20.1. Operation of wheelchairs — Lamps and other equipment required. (a) Any wheelchair, motorized or manual, operating upon roadways, when in use at nighttime, shall be equipped with: a lamp on the front which shall emit a white light visible from a distance of at least 500 feet to the front.
(b) Every wheelchair shall be equipped with a red reflector of a type approved by the registry which shall be visible from 600 feet to the rear when directly in front of lawful lower beams of headlamps on a motor vehicle.
(c) *Side Reflectors.* (1) Every wheelchair operating upon roadways, when in use at nighttime, shall be equipped with a minimum of 20 square inches on each side of the wheelchair of white reflective material on the wheels or tires to indicate as nearly as possible the continuous circular shape and size of the wheels or tires of each wheelchair. (2) All reflective material shall be visible during the hours of darkness from 500 feet when viewed under lawful low beam headlights under normal atmospheric conditions on straight, level, unlighted roadway, and shall meet the requirements as prescribed by the registry of motor vehicles.
(d) No person shall sell a wheelchair, new or used, that is not equipped with side reflectors, rear reflectors and front white light as required by this section. Wheelchairs sold to institutions for the

exclusive use inside facilities shall be exempt from this section, provided that no such exempt wheelchair shall be used upon roadways.

31.18-20.2. Wheeling in street prohibited. Where sidewalks with curbcuts and at least 32 inches of unobstructed clear width are provided it shall be unlawful for any use of a manual or motorized wheelchair to wheel along and upon an adjacent roadway.

31-18-21. Pedestrians and bike facilities. Except in the cases of limited access roads, and/or roads of less than 23 feet in width, and/or roads already past 30% design stage as of July 1, 1997, the director of the department of transportation is hereby authorized and directed to provide for the accommodation of bicycle and pedestrian traffic in the planning, design, construction and reconstruction, and to consider such in the resurfacing and striping of any project undertaken by the department, unless the director, after appropriate review by the

director or his or her designees determines that the inclusion of bike facilities and pedestrian access would be contrary to acceptable standards of public safety, degrade environmental or scenic quality, or conflict with existing right-of-way. In *his/her* deliberations, the director shall take into consideration the cost of such facilities in relationship to available funding. Bike facilities may include bike lanes, routes or paths; permeable paved shoulders, and/or signage.

3 1-18-22. Public Information and Education. A program of public information and education designed to educate the motoring public to the rights of pedestrians, shall be developed by the Rhode Island department of transportation's governors office on highway safety. The Rhode Island department of transportation's office on highway safety, in cooperation with the Rhode Island. department of health, shall study the effectiveness of the implementation of this section and shall submit to the general assembly a report containing its findings by July 1, 2000.

Title 24: Highways

Chapter *5:* Maintenance of Highways

24-5-1. Duty of town to maintain highways. Sections 24-8-6 and 24-8-9 give the state authority to enter into contracts to construct and maintain sidewalks along state roadways, consequently, the state's execution of a construction and maintenance agreement with a city in which the state unequivocally agreed to maintain a sidewalk divested the city of any duty of maintenance and the city owed no duty to keep the sidewalk safe for pedestrian travel (Pullen v. State, 707 A.2d 686, RI 1998).

24-8-9. Regulations of sidewalks and curbs. Absent a construction and maintenance contract with a town, the state did not have a duty to maintain and repair a sidewalk adjacent to a state highway with the town (Town of Lincoln v. State, 712 A.2d 357, RI 1998).

24-7-I.. Power of towns to establish and regulate sidewalks. The town council of any town shall have the power to order sidewalks, including curbing of stone or other

material, made and laid in and upon the streets and highways of the town, and may make ordinances and regulations relative to the altering or repairing thereof, to the use, maintenance, care, and cleaning of the sidewalks, to removing ice and snow therefrom, to the removal of posts, steps, and other obstructions therein, and to the maintenance and removal of awnings, signs, and other structures projecting over the sidewalks; provided, that the ordinances and regulations shall not be contrary to the laws of this state.

24-7-2. Order to lay sidewalk — Notice and hearing. Whenever the town council shall determine by its vote that a sidewalk shall be made and laid in and upon any street or highway in the town, they may order the sidewalk to be made and laid, upon like notice to the abutting landowner, as is provided in section 24-3-23. At the same time and place named in the notice, the town council shall proceed to hear all the parties and to make and pass an order in reference to the making and laying of the sidewalk as they may think proper.

24-7-3. Division of costs between town and landowners. Whenever any sidewalk in and upon any street or

highway shall be ordered made and laid as provided in section *24-7-2,* the owners of the land abutting on the sidewalk shall pay one-half (1/2) the costs thereof to be set against their respective lands, and the town shall pay the balance of the costs thereof

24-7-8. Sidewalks along state highways. Nothing in this chapter shall be held to oust the state of jurisdiction over any such sidewalks and curbing as may be made, laid, or constructed upon state highways within a town, but no sidewalks or curbing on state highways shall be made, laid, or constructed without the approval of the director of transportation first being had and obtained as to the feasibility, location, type and time of construction.

24-7-9. Permits for telephone booths and equipment — exception. In addition to all powers heretofore granted each city and town by charter or by the public laws of the state with respect to maintenance and use of the sidewalks and the public highways and streets within the cities and towns, the city council of any city and the town council of any town is hereby empowered by ordinance to authorize the placing and maintenance of telephone booths, telephones, and their appurtenances within the limits of any sidewalk or public highway or street within the bounds of the city or town, and to designate a city or town official from time to time to issue permits therefore; and provided, farther, that this section shall not apply to the placing and maintenance of the poles, wires, conduits, and other equipment of any telephone company within the limits of any sidewalk or public highway.

24-7-10. Westerly exemption. The provisions of Chapter 24 shall not apply to the town of Westerly.